COMMANDER'S ESTIMATE OF THE SITUATION

(CES)

NWC 4111G

(Instructional Workbook for In-Class Work/Wargaming)

JMO Department, Naval War College
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PREFACE

This document provides a framework to conduct a Commander's Estimate of the Situation (CES) for military problems requiring the employment of combat forces. It is based on the Navy's NWP 5-01 (Rev. A) Naval Operational Planning, CJCSM 3500.5A, Joint Task Force HQ Master Training Guide, U.S. Marine Corps Command and Staff College Warfighting Book, MCDP-6 Command and Control, MCWP 5-1 Marine Corps Planning Process, the series of the U.S. Army Command and General Staff College publications ST 100-9 The Tactical Decision Making Process and ST 101-5 Command and Staff Decision Processes, Battle Command: Leadership and Decision Making for War and Operations Other Than War (Draft 2.1), U.S. Army FM 101-5 Staff Organization and Operations, JP 3-0 Doctrine for Joint Operations, JP 5-0 Doctrine for Planning Joint Operations, JP 5-00.2 Joint Task Force Planning Guidance and Procedures and JP 2-01.3 Joint Tactics, Techniques, and Procedures for Joint Intelligence Preparation of the Battlespace, and a variety of products from the U.S. Joint Forces Command Joint Warfighting Center. The format is designed to accommodate the estimate requirements regardless of the size of the forces involved and the environment and the scale of the objectives to be accomplished. The format of the estimate is also intended to be applied across the full range of military operations, from Stability and Support Operations (SASO) to war.

Electronic copies of this workbook are available through the Naval War College, Joint Military Operations Department website, http://www.nwc.navy.mil/jmo/

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THE COMMANDER'S ESTIMATE OF THE SITUATION (CES)

Military commanders are required to make decisions constantly. Every day, they and their staffs resolve simple, routine and/or complex problems. To help them think through their options when faced with a force employment decision, while applying their knowledge, experience and judgment, military commanders use a decision-making tool called the Commander's Estimate of the Situation.

Purpose: Joint Pub 5-0 defines the CES as "a logical process of reasoning by which a commander considers all the circumstances affecting the military situation and arrives at a decision as to a course of action to be taken to accomplish the mission."

Developing estimates is a continuing function of all commanders and staff officers. In reality, all officers involved in military operations are continually revising their original estimates in the light of current developments. The estimate of the situation is an ongoing process, which begins at the inception of the planning phase and ends at the conclusion of operations. An entirely new estimate normally is not prepared except when a new operation is undertaken or when a drastic change in the situation renders such action necessary.

In the estimate, the commander evaluates all the elements that affect the employment of forces and assets. The Course of Action (COA) selected is the basis for the development of plans and the issuing of combat orders. The commander's estimate is also a means to transmit the decision to the next higher command echelon for approval. It is not a document to convince the reader of the wisdom of the selected COA. Rather, it is a summary that clearly communicates valuable guidance from the commander and is used as a valuable tool by the staff and subordinate commanders.

The commander's estimate is the first and most critical phase in the military planning process. It is conducted at all command echelons: tactical, operational, and theater-strategic. Normally a geographic combatant commander will also prepare a strategic estimate during peacetime as an integral part of the deliberate planning process (DPP).[1]

Scope: The commander's estimate of the situation encompasses a commander's assigned area of operations, his area of interest, and should be as comprehensive as time constraints permit. It may vary from a short, almost instantaneous mental estimate to a carefully written document that requires days of preparation and the collaboration of many staff officers. Time available to complete the estimate is an important factor in the CES process.

Format: The steps in the commander's estimate can be expanded or condensed according to the nature of a problem. However, to maintain the logical sequence of reasoning and to ensure consideration of pertinent factors, all the steps of the estimate should be generally followed whenever possible. The format of the estimate process should not prevent a commander from selecting the best method of arriving at a sound solution to a military problem.

[1] A Strategic Estimate provides a guide for developing assessments of national strategic issues. The format is somewhat different from the Commander's Estimate of the Situation (JP 1).

The process is supported by staff section specific estimates. Most of the staff divisions (e.g., J-1, J-2, J-3, etc., or Service counterparts) prepare their own estimates of the situation. Pertinent parts of these staff estimates are then inserted, verbatim or in modified form, into the commander's estimate of the situation. See CJCSM 3500.5A, Joint Task Force HQ Master Training Guide for a good review of each of the staff estimates.

Generic Commander's Estimate of the Situation

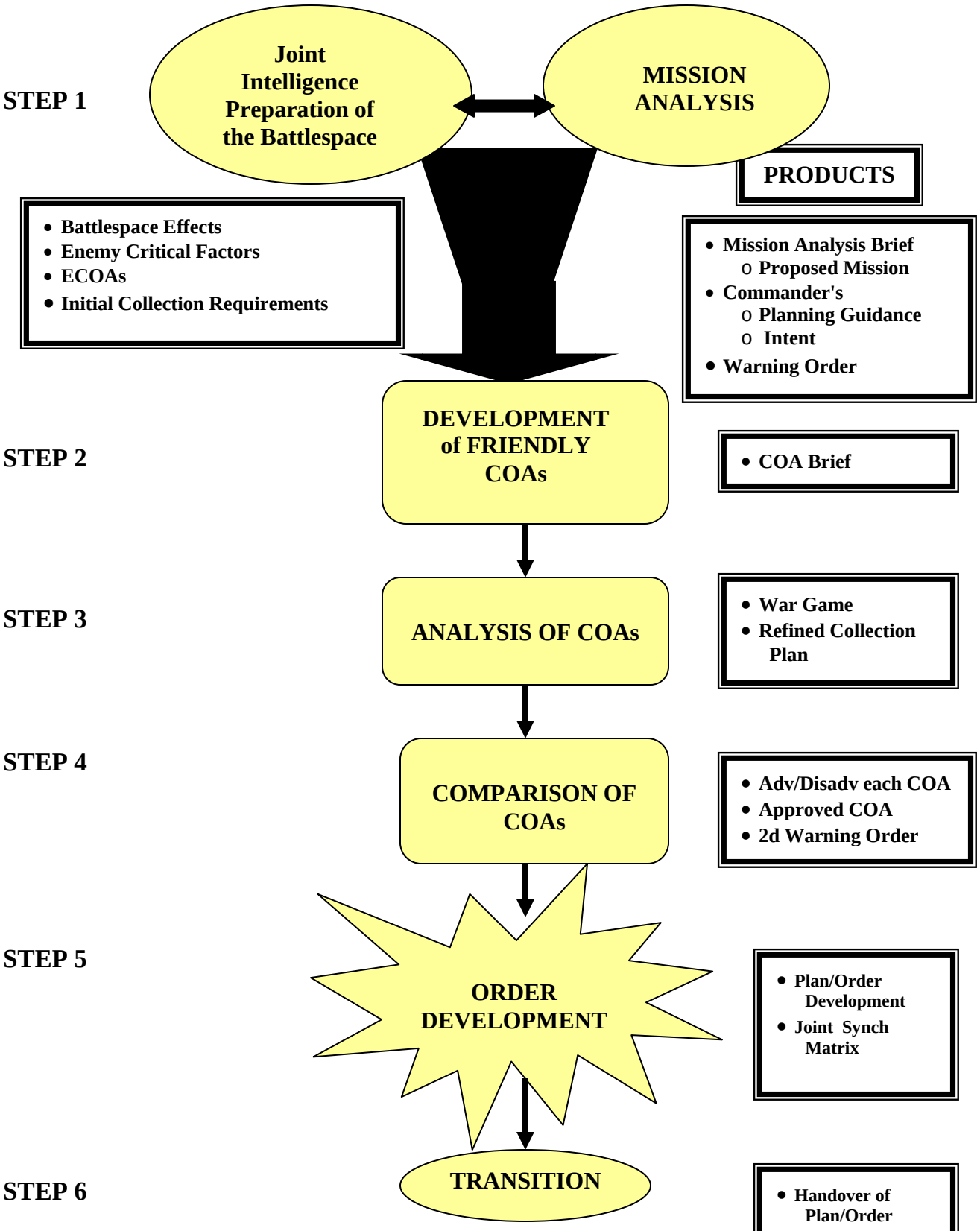
The Commander's Estimate of the Situation is directly linked with the Joint Operation Planning and Execution System (JOPES), Volume I (Planning Policies and Procedures) during Crisis Action Planning. After Step II, Crisis Assessment, the Warning Order is published which formally directs course of action development and starts the planning process of the Commander's Estimate of the Situation. Yet, even though JOPES discusses the requirement for submission of a CES, it does not provide guidance for the preparation of one. There is an excellent review of an operational-level CES contained in CJCSM 3500.5A, Joint Task Force HQ Master Training Guide. This workbook provides a discussion of how to conduct an estimate of the situation regardless of the scope of military action to be taken. It includes the elements used in the commander's estimate at most command echelons. Where appropriate, references to formats or guidance contained in joint doctrine publications, or recommended formats, are provided. A CES conducted by another Service may differ in format and detail, but will address similar issues.

The generic commander's estimate consists of six principal steps:

Step 1: Joint Intelligence Preparation of the Battlespace and Mission Analysis
Step 2: Development of Friendly Courses of Action.
Step 3: Analysis of Friendly Courses of Action.
Step 4: Comparison of Friendly Courses of Action and the Decision.
Step 5: Development of Plans/Orders.
Step 6: Transition.

Note that in practice these steps take place sequentially, but may be compressed depending on available planning time, staff experience/capabilities, and the commander's involvement in the process. Additionally, subordinate—or even superior commanders—will be conducting their own parallel CES that require inputs from your command's CES process. In other words, no CES is done in isolation. These steps are described and analyzed here sequentially for instructional purposes only.

COMMANDER'S ESTIMATE OF THE SITUATION



STEP 1: JOINT INTELLIGENCE PREPARATION OF THE BATTLESPACE (JIPB) AND MISSION ANALYSIS (MA)

PART 1: JOINT INTELLIGENCE PREPARATION OF THE BATTLESPACE

THE PURPOSE OF THE JIPB PORTION OF THIS CES WORKBOOK IS NOT TO MAKE THE USER A JIPB EXPERT. THE INTENT IS TO EXPOSE THE NON-INTELLIGENCE STAFF OFFICER/PLANNER TO A CRITICAL ASPECT OF THE PLANNING PROCESS WHICH IS ON-GOING THROUGHOUT THE PLANNING AND EXECUTION OF AN OPERATION. ALL PLANNERS NEED A BASIC FAMILIARITY OF THE JIPB PROCESS IN ORDER TO BECOME CRITICAL CONSUMERS OF THE PRODUCTS PRODUCED BY THE J2/G2/N2/A2. THE JIPB SERVES AN INTEGRAL ***SUPPORTING*** ROLE TO THE OVERALL CES PROCESS. SOME OF THE STEPS IN THE JIPB ARE CONDUCTED IN PARALLEL WITH THE MISSION ANALYSIS AND WILL REQUIRE INPUT FROM OTHER MEMBERS OF THE JOINT PLANNING TEAM. **SEE APPENDIX A FOR GREATER JIPB DETAILS AND JOINT PRODUCT EXAMPLES.**

Joint Intelligence Preparation of the Battlespace is the analytical process used by joint intelligence organizations to produce intelligence assessments, estimates, and other intelligence products in support of the joint force commander's decision-making process. (JP 2-01.3) The primary purpose of JIPB is to support the commander's decision making and planning for a major operation or campaign by identifying, assessing, and estimating the enemy's center(s) of gravity,[2] critical vulnerabilities, capabilities, limitations, intentions, and COAs that are most likely to be encountered based on the situation. JIPB products help to provide a clear understanding of the strategic landscape and battlespace (operational environment) that is used by the joint force staff to develop friendly COAs and provide a foundation for the commander's decision regarding which friendly COA to adopt. Although JIPB support to decision making is both dynamic and continuous, it must also be "front loaded" in the sense that the majority of analysis must be completed early enough to be factored into the commander's decision making effort.

In order for the joint force staff to identify potential COAs, the Joint Force Commander (JFC) must formulate planning guidance based on an analysis of the friendly mission. This analysis helps to identify specified, implied, and essential tasks; possible branches and sequels; and any limitations on the application of military force. JIPB supports Mission Analysis by enabling the commander and staff to visualize the full extent of the battlespace, to distinguish the known from the unknown, and to establish working assumptions regarding how adversary and friendly forces will interact within the limitations of the battlespace environment. JIPB also assists commanders in formulating their planning guidance by identifying significant adversary capabilities and by pointing out critical battlespace factors, such as the locations of key geography, attitudes of indigenous populations, and potential land, air, and sea avenues of approach. MA and the commander's planning guidance form the basis for the subsequent development of friendly COAs by the staff.

[2] Depending on the level of operation, the JIPB should identify enemy Centers of Gravity at the strategic, operational, and tactical level, as appropriate.

JIPB is a continuous process, which enables JFCs and their staffs to visualize the full spectrum of adversary capabilities and limitations as well as potential Enemy Courses of Action (ECOAs) across all dimensions of the battlespace. While JIPB is most often seen as part of the military planning process, it is actually conducted both prior to and during operations. Just as the commander must continually make decisions about the course of a campaign or operation, the intelligence staff must constantly work to seek out, analyze, and disseminate new information to support those decisions. Although the specifics of the process vary depending on the situation and force involved, there is general agreement on the four major steps of JIPB.

I. DEFINE THE BATTLESPACE ENVIRONMENT. This first step is an initial survey of the geographic and non-geographic dimensions of the battlespace. It is used to bound the problem and to identify areas for further analysis. There are generally three tasks that must be accomplished.

1. Identify the Area of Operations and the Area of Interest. Much of the information may be provided in the superior's order or OPLAN, but usually this step requires coordination with the J-5, J-3, or other elements of the staff. If a Joint Operations Area (JOA) or other operational areas have been identified, they will help guide the intelligence requirements and collection plan. The operations area, or **Area of Operations (AO)**, is generally the area of direct concern to the commander and intelligence will be focused on this area. The **Area of Interest (AI)** is usually a larger area, including areas that may influence the operation, but might not be under direct operational control of the commander. Intelligence activities will also be focused on this area, but not necessarily to the same degree as on the AO. The AO and AI may differ for each dimension of warfare – land, maritime, air, space, and cyberspace – and may need to be adjusted later in the planning process, e.g., if additional threats are identified outside the defined areas which may impact upon the commander's AO.

(Joint) Area of Operations:
(Recommend this be displayed on a map/chart for clarity and reference)

Area of Interest:

2. Determine the Significant Characteristics of the Battlespace Environment. This sub-step is an *initial review* of the factors of **space, time,** and **forces** and their **interaction** with one another. Examining these factors in general terms early in the process will help initiate intelligence collection and other activities that will support the later steps of the CES. This review will require information on friendly forces and how the factors of space and time affect them. For this reason, the J2 staff must work closely with the J5, J3, and other staff members throughout the process.

3. Evaluate Existing Data Bases and Identify Intelligence Gaps and Priorities. In this sub-step, intelligence personnel review the information found in various automated databases, Intelink sites (the classified version of the internet), and other intelligence sources, both classified and unclassified. The staff begins to coordinate with local, theater, and national intelligence organizations that may provide support to the operation, and initiates new intelligence collection and production requests as necessary. Intelligence requests and requirements may take the form of:

- **Priority Intelligence Requirements (PIRs).** These are the *commander's* intelligence priorities for the operation that will drive all intelligence activities used in support of Commander's Critical Information Requirements (CCIRs) to be discussed later. The J2 staff will normally develop and propose PIRs for the commander's approval.

- **Requests for Information (RFIs).** This is a *general term* that may be used by operations or other personnel who need timely information from the intelligence staff or an intelligence organization concerning an aspect of the operation. If the information is readily available, such as through the Joint Intelligence Center (JIC), the RFI will be answered directly. If the answer will require additional analytical work, a *production request* may be necessary.

- **Production Requests (PRs).** These are used to request the development of new studies, reports, and other intelligence products. For example, if the initial review of available intelligence revealed that little information existed on the enemy's information operations capability, a PR might be sent by the J2 staff to the theater JIC, requesting that this information be provided by a certain date. If the information to answer such a request does not currently exist in the intelligence community, a *collection requirement* may be placed.

- **Collection Requirements (CRs).** These may take many forms, depending on the information needed and the collection assets available to get it. For example, some

information may be available through the tasking of a theater intelligence collector such as U-2 aircraft. The J2 staff collection managers process these requirements and it is their job to determine where and how to best get the necessary intelligence.

This step is only a preliminary review of the intelligence available; the J2 staff will continue to levy intelligence requirements throughout the JIPB process and, in fact, throughout the entire course of the operation.

II. DESCRIBE BATTLESPACE EFFECTS. The purpose of this step is to determine how the battlespace affects both friendly and enemy operations. It begins with an identification and analysis of all militarily significant environmental characteristics of each battlespace dimension. These factors are then analyzed to determine their effects on the capabilities and broad COAs of both enemy and friendly forces. ***Not all parts of this step may be a J2 responsibility***. For example, in some commands weather and topography may not be specifically J2 functions. The J2 staff will, however, take the lead in coordinating these efforts.

1. Analyze the Factor of Space of the Battlespace Environment. This step involves an in-depth analysis of the factor space. Generally, only those characteristics of the AO should be considered which affect the preparation, planning, and employment of the enemy or friendly forces and assets. The scope and extent of this analysis at each level of war differs considerably. For example, the tactical commander is rarely concerned with the economic, political, and technological aspects of the situation, whereas the theater of operations and theater of war combatant commanders are concerned with these aspects. Moreover, weather is normally of greater concern for the tactical commander, while the climate receives greater attention at the operational and theater-strategic level. This does not mean, however, that the weather is not taken into account in determining the time and place of attack by the operational commanders, especially in planning and executing an amphibious landing. The focus in this step is to briefly describe the most important features of the situation and their effect on enemy capabilities and in the development of friendly COAs for all of the battlespace dimensions (land, maritime, air, space, electromagnetic, and cyberspace). While all of the aspects of a given element are fully considered, only those aspects that have an impact on the tactical, operational, or strategic mission are highlighted.

The *land dimension* is determined through terrain analysis. Terrain analysis consists of an evaluation of the military aspects of the battlefield's terrain to determine its effects on military operations, both friendly and enemy. The most important military aspects of terrain are: Observation and fields of fire; Cover and concealment; Obstacles; Key terrain; and Avenues of approach (**OCOKA**).

The *maritime dimension* pertains to key military aspects of the maritime environment. These include maneuver space and chokepoints; harbors and anchorages; ports, airfields, and naval bases; shipping routes; and the hydrographic and topographic characteristics of the ocean floor and the littoral land mass.

The *air dimension* involves an analysis of all factors of the battlespace that may affect friendly and enemy air operations. Enemy infrastructure that supports either offensive air

operations or defense against air attacks should be analyzed. This step will require analysts to consider not only terrain and weather, but aspects such as airspace issues as well.

The *space, electromagnetic, and cyberspace dimensions* analysis will vary greatly depending on the nature of the threat, the level of command involved, and the time available for planning. Specialized support may be required, such as from elements from the US Space Command or the electronic warfare and information operations communities. The J2 staff will need to coordinate with other staff elements that are involved with these areas.

The items listed below are applicable to the entire range of military operations, from SASO to war. Therefore, describe and analyze only those aspects of the factors of space, time, and forces that are applicable to the mission of the friendly forces.

a. Military geography: The physical environment includes many parameters that affect the combat capabilities and execution of actions of friendly forces and assets (see Figure 1-1). In describing these features the commander and staff should be aware that there are generally accepted descriptions of related conditions as defined by the Universal Joint Task List (UJTL).

Land

Terrain Slope
Steep (>10%); Moderate (3 to 10%); Little (<3%)

Vegetation
Jungle (rain forest, canopied); Dense (forested); Light (meadow, plain); Sparse (alpine, semi-desert); Negligible (arctic, desert)

Sea

Ocean Depth
Shallow (<100 fathoms); Limited (100 to 500 fathoms); Deep (500 to 2500 fathoms); Very Deep (>2500 fathoms)

Harbor Depth
Deep (>60 ft); Moderate (30 to 60 ft); Shallow (<30 ft)

Air

Air Temp
Hot (>85^{o}F); Temperate (40^{o} to 85^{o}F); Cold (10^{o} to 39^{o}F); Very Cold (<10^{o}F)

Visibility
WOXOF (<1/4 NM); Low (1/4 to 1 NM); Moderate (1 to 3 NM); Good (3 to 10 NM); High (10 to 20 NM); Unlimited (>20 NM)

Figure 1-1. Examples of Conditions of the Physical Environment

(1) *Area:* total area (in sq miles/kilometers) in which the planned combat action is to take place; length and width of the area (in miles/kilometers); geographical boundaries (land, maritime, river, lakes).

(2) *Position*: Land or maritime position; insular, peninsular position; exterior or central position, etc.

(3) *Distances*: Distances from home bases to the area of combat employment; distances between base of operations to the concentration or assembly area; distances between various physical objectives, etc.

(4) *Land Use:* The main characteristics of the land use (arable land; permanent crops, irrigated land, etc.).

(5) *Environment:* Provide an overview of the environmental issues that potentially can affect the employment of military forces on both sides (pollution—air, water, land; natural hazards; destructive earthquakes, volcanoes, etc.).

(6) *Topography:* Provide the main features of relief (flat, mountainous, swampy, desert, etc.) and the affect the topography has on the movement and employment of military forces on both sides.

(7) *Vegetation:* The main characteristics of vegetation in the area (barren, woodland, meadows and pastures, hedgerow, rice paddies, etc.) and its affect on the movement and employment of military forces on both sides.

(8) *Hydrography/Oceanography*: Characteristics of sea/ocean areas (size of the area; coastal indentation, coasts and offshore islands/islets; archipelagoes, deltas, straits, narrows, bottom's topography; water depths, salinity, bioluminescence, currents, tides, etc.), and rivers/estuaries, streams, lakes, and artificial inland waterways (canals, lakes, etc.).

(9) *Climate/Weather*: The main features of the climate (temperate, cold, arctic, tropic, subtropics); change of seasons; thaw; duration of the day (sunrise, sunset, twilight, etc. and their general affects on the preparation execution of the forthcoming military action); cloud cover, low ceiling/visibility, fog, precipitation (rainfall, snow, etc.); winds, waves (high seas—sea state 5 and higher), surf height; temperatures (sea, air, mean and extreme temperatures, etc.), humidity and its affect on the use of weapons/equipment and fatigue of personnel; thermal crossover and transmissivity; precipitation (rainfall, snow, etc.) and its affect on off-road trafficability; sea ice, icebergs, currents, tides, etc.

b. Demography: Provide the analysis of the main aspects of the demographic situation; total population; age structure; racial composition; regional distribution; urban vs. rural population; average density (per sq mile/km); net migration rate; growth rate; life expectancy at birth; total fertility rate; degree of urbanization; birth rate; mortality rate; infant mortality rate; health and medical, etc.

(1) *Ethnicity:* Ethnic composition; national groups and national minorities; ethnic problems or conflicts, etc.

(2) *Religion:* Main religions; relations with the state; religious holidays; religious differences or problems; etc.

(3) *Languages:* Dominant languages; dialects; languages of the ethnic minorities; alphabet used, etc.

(4) *Literacy:* Provide general overview; illiteracy of adults; illiteracy among urban and rural population, etc.

c. Politics: The main characteristics of the political system (system of government; executive, judiciary, legislature, etc.); form of government; administrative divisions; legal system; constitutional system and constitutional issues; ruling regime; political parties and leaders; other political or pressure groups; trade unions; human rights; political stability; internal threats (political extremism, terrorism, insurgency, serious crime/drugs, etc.) external threats (border disputes, resource disputes, etc.).

d. Diplomacy: The main characteristics of the country's diplomatic position; relations with foreign countries; alliances/coalitions; bilateral agreements; diplomatic representation; international law issues/problems (maritime claims, neutrality declarations, etc.).

e. Natural Resources: Minerals (iron, zinc, lead, copper, silver, graphite, uranium, etc.); energy resources (thermal—coal, lignite, oil, natural gas, hydroelectric, wind, etc.); water supply, food supply, etc.

f. Economy: Key characteristics of economic system; economic policy; economic performance; national product (GNP); real growth of GDP; total budget; budget deficit; inflation rate; currency; debts (external, internal, etc.); external debt servicing payments; foreign investment; foreign aid; aid donors; finance (banking, insurance, etc.); domestic trade; land and maritime trade (coastal, regional, ocean-going, etc.); foreign trade; trade deficit; trading partners; heavy industry (mining, metallurgy, machine building, etc.); defense industry; military R&D; covert programs; production of weapons of mass destruction (nuclear, biological, chemical); aerospace industries; shipbuilding; ship repair facilities; light industry (consumer goods; chemicals and related products; pharmaceutical industry; food, beverages, tobacco; textile and clothing; wood and paper products; apparel, leather, footwear; etc.) petroleum products; electronics; electricity (by source-thermal, hydroelectric, nuclear, wind, solar; capacity, production, consumption); fisheries; tourism (domestic, foreign, etc.); work force by sectors (agriculture, industry, forestry, banking, education, culture, administration and justice; welfare and education, etc.); migrant workers; unemployment; income per capita; living standards; nutrition level, etc.

g. Agriculture: The main characteristics of agricultural production; cereal production; fodder crops; beef and dairy production; livestock production (sheep, cattle, etc.); produce; fruits, etc.

h. Transportation: General characteristics of the transportation system (domestic, links with other countries in the region or out of the area); land transportation—roads (paved, unpaved—gravel, earth, etc.); railroads (standard gauge, narrow gauge; electrified; industrial, etc.), inland waterways (rivers, lakes, canals, etc.); maritime transport—merchant marine (merchant vessels by type—passenger ships, ferries; crude oil tankers, liquefied natural gas (LNG) tankers; container ships freighter; bulk-carriers; size, age, speed, etc.); shipping companies; ports; port terminals—oil, container, freight, etc., air transport—civil aviation; air carriers—domestic and international service; business aviation; agricultural aviation; airports (paved or unpaved runways; runway weight bearing capacity; maximum on ground (MOG) capacity; runways by length—>3,600 m 2,400-3,659 m; 1,220-2,439 m; <1,220 m), etc.

i. Telecommunications: Wire services, commercial satellite, radio (FM/AM, short-wave), cable, land line, fiber optical lines and other communications facilities in the area of operations that might enhance Command and Control (C2) of military forces.

j. Culture: Describe and analyze the main cultural traits; cultural biases and prejudices; sensitivities; prevalent view of other national groups, races, or nations; cultural differences among various ethnic groups, etc.

k. Ideology: Describe and analyze the key characteristics of the political ideology; strengths and weaknesses; vulnerabilities; etc.

l. Nationalism: Describe briefly and analyze the key aspects of the nationalism (country or political parties/groups, etc.); nationalistic feelings; strengths and weaknesses/vulnerabilities; etc.

m. Sociology: Social conditions run a wide range from the psychological ability of a population to withstand the rigors of war, to the health and sanitation conditions in the area of operations. Language, social institutions and attitudes, and similar factors that may affect selection of a course of action should be considered.

n. Science and Technology: Although little immediate military impact may result from the state of science and technology in a target area, the long-range effects of such factors as the technical skill level of the population and scientific and technical resources in manpower and facilities should be considered in cases where they may affect the choice of a COA.

Summarize the Key Elements of the Factor of Space:

2. Analyze the Factor of Time of the Battlespace Environment. This part of the analysis should analyze the factor of time in generic terms and how it affects the mission accomplishment on both sides.

a. Preparation Time: Estimate the time required to prepare for war or for the forthcoming military action based on the doctrinal tenets or empirical data.

b. Duration of the Enemy Action: Estimate the time of the expected or pending enemy tactical action, major operation, or campaign.

c. Warning Time: Estimate the warning time for the forthcoming military action for both friendly and enemy forces (based on the existing reconnaissance, intelligence and early warning capabilities).

d. Decision Cycle: Estimate the time required for both sides to make a decision - the time from receipt of the mission to the selection of the optimal COA.

e. Planning Time: Estimate the time required for both sides to issue a directive - the time from the selection of a COA to the issuance of a directive.

f. Time for Mobilization: Estimate the time required for both sides to mobilize ready reserves or complete partial or total mobilization.

g. Reaction Time: Estimate the time for both sides (based on doctrinal tenets or empirical data) to *effectively* react to the enemy's move or action.

h. Time Required for Deployment: Estimate the time both sides require to prepare and move forces from their home stations to the ports or airfields of embarkation.

i. Deployment Transit Time: Estimate the time required to move forces by land, sea, and air from major base or staging/deployment areas into the theater or area of operations; compute distances and transit times for each friendly unit/force, and enemy unit/force.

j. Time for Concentration: Estimate the time both sides require to move and concentrate forces within the battlespace.

k. Time to Prepare and Complete Maneuver: Estimate the time necessary for both sides to prepare, execute, and complete their maneuvering (tactical or operational).

l. Time to Accomplish the Mission: Estimate the time both sides require to accomplish the entire combat mission.

m. Rate of Advance (or Delay): Estimate potential rates of advance (in an offensive) or rate of delaying action (in a defensive) for both sides (applicable only in land warfare).

n. Time for Bringing up Reinforcements: Estimate the time required by both sides to move and effectively employ reinforcements.

o. Time to Commit Reserves: Estimate the time required by both sides to effectively commit tactical or operational reserves.

p. Time to Regenerate Combat Power: Estimate the time both sides need to regenerate combat power (R&R for manpower; replenishment of POL, AMMO, food, water, etc.)

q. Time for Redeployment: Estimate the time both sides require to prepare and complete redeployment of forces to a new area/mission.

r. Time to Reconstitute Forces: Estimate the time required by both sides to reconstitute forces after the end of the hostilities, it encompasses regeneration of combat power and reorganization.

Summarize the Key Elements of the Factor of Time:

3. Assess Time - Space Relationship. Any key time-space relationships should be identified and assessed with respect to their affect on both enemy and friendly COAs.

4. Determine the Battlespace Effects on Enemy and Friendly Capabilities and Broad Courses of Action. The analysis that has been conducted in STEP 1 is combined into a single integrated product that focuses on the total environment's effects on all COAs available to both friendly and enemy forces. The product may take the form of a briefing, set of overlays, intelligence estimate, or any other format the commander deems appropriate. **Regardless of the format, this product is designed to support the development and evaluation of friendly COAs** by providing the J5/J3 and commander with an evaluation and an analysis of the periods of optimal conditions for specific types of military operations.

Example of Battlespace Effects on Enemy and Friendly COAs

Item: REDLAND is bounded on three sides by neutral nations, and water on the fourth side.	Effect on ECOAs Enemy can minimize Force deployments on those neutral borders.	Effect on friendly COAs Friendly Lines of Operation will be predictable.

Summarize Key Influences of Time/Space on ECOAs and Potential Friendly COAs:

SITUATION	EFFECT ON ENEMY COAs	EFFECT ON FRIENDLY COAs
Item:		
Item:		
Item:		
Item:		

Table 1-1. Influences of Time and Space on ECOAs and Potential Friendly COAs

Charts or overlays that show the important aspects of terrain for all significant dimensions of military operations are the primary products that are developed during this sub-step. **The most important graphic is a Modified Combined Obstacle Overlay (MCOO)** that depicts critical information such as restricted areas, avenues of approach, likely engagement areas, and key terrain. Examples of a Land MCOO, Maritime MCOO, and Air MCOO are provided in Appendix A (source Joint Pub 2-01.3, JTTP for Joint IPB).

III. EVALUATE THE ENEMY (the Factor of Force). The third step in the JIPB process is to identify and evaluate the enemy's forces and its capabilities, limitations, doctrine, and tactics, techniques and procedures (TTP) likely to be employed. In this step, analysts develop models to portray how the enemy normally operates and identifies capabilities in terms of broad ECOAs the enemy might take. Analysts must take care not to evaluate enemy doctrine and concepts by "mirror imaging" US doctrine.

1. Identify Enemy Force Capabilities. At this point the intelligence staff will normally utilize basic intelligence data that has been produced by theater joint intelligence centers and other analytical organizations to analyze the enemy factor of force. The broader term "means" can be used when not only military forces, but also other sources of power (political, economic, etc.) of a nation or a group of states are brought to bear. This part of the estimate may provide a detailed analysis of the armed forces as a whole or individual services or focus on the combat

forces and combat support forces on both sides depending on the scale of the forthcoming military action and the command echelon.

a. Defense System: Provide an overview and analysis of the defense system; components of defense system (armed forces, police, para-military forces/groups; civil defense, etc.); national military organization; civilian control; civil-military relations; defense expenditures; security assistance; arms transfers; arms imports; foreign military aid; military relations with foreign countries; foreign military advisors; etc.

b. Armed Forces: Total strength; trained reserve; mobilized manpower; officer corps, NCOs, soldiers/seamen; Services (Army, Navy, Air Force and/or Air Defense, Marine Corps or Naval Infantry, Coast Guard); etc. The following elements should be analyzed: overall numerical strength of forces on both sides; active forces vs. reserves; combat vs. noncombat forces; forces in combat vs. forces assigned for protection of the rear areas; types of forces and force mix; mobility (tactical or strategic); task organization; reconstitution ability; logistic support and supportability; combat readiness; transportation assets, etc.

c. Relative Combat Power of Opposing Forces: The *relative combat power* is derived by evaluating the strengths and weaknesses of friendly and enemy forces, their location and disposition, logistics, time and space factors, and combat efficiency (see Appendix B). Normally, the staff will identify relevant factors, tabulate the facts, and then draw conclusions. Comparisons are meaningful only if they reflect the forces that will directly oppose each other. Any strength or weakness factor must reflect directly or indirectly the ability or inability of a force to achieve its assigned objective.

(1) Composition of Forces: This includes Order Of Battle (OOB) of major enemy forces or formations; type and forces' mix; major weapons systems and equipment and their operational characteristics.

(2) Reserves: Describe and analyze reserves (tactical, operational, or strategic) for the forthcoming action on both sides.

(3) Reinforcements: Estimate friendly and enemy reinforcement capabilities that can affect the forthcoming action in the area under consideration. This study should include ground, naval, air, and space elements; Weapons Of Mass Destruction (WMD); and an estimate of the relative capacity to move these forces into the area of operations or theater of operations.

(4) Location and Disposition: This includes geographic location of enemy units; fire support elements; C2 facilities; air, naval, and missile forces; and other elements of combat power in, or deployable, to the area of operations or the given theater of operations.

(5) Relative Strengths: List the number and size of enemy units committed and those available for reinforcement in the area. This should *not* be just a tabulation of numbers of aircraft, ships, missiles, or other weapons, *but* rather *an analysis of what strength the*

enemy commander can bring to bear in the area in terms of ground (air, naval) units committed and reinforcing, aircraft sortie rates, missile delivery rates, unconventional, psychological, and other strengths the commander thinks may affect the ratio of forces in the employment area.

d. Logistics: Summarize such considerations as transportation, supply, maintenance, hospitalization and evacuation, labor, construction, type of lines of communications (LOCs), to include land, air, sea; and their position (exterior or interior); protection and degree of vulnerability to diverse types of threat, and other elements of logistical support and sustainment.

e. Combat Efficiency: Estimate friendly and enemy state of training, readiness, battle experience, physical condition, morale, leadership, motivation, doctrine, discipline, and whatever significant strengths or weaknesses may appear from the preceding paragraphs.

Summarize the Key Elements of the Factor of Forces (Enemy):

2. DRAW-D. At this point, the analyst begins to consider ***general*** enemy COAs and how the enemy might be expected to act under each of these general COAs. General COAs can be described using the acronym "DRAW-D," which stands for **D**efend, **R**einforce, **A**ttack, **W**ithdraw, or **D**elay.

a. Doctrinal templates. Individual service templates are usually constructed that portray each of the enemy's service or functional area employment patterns. For example, in addition to a ground template that illustrates the enemy's typical land force organization for an offensive, separate templates are constructed for naval, air, space, and cyberspace assets, as appropriate. These templates may be combined into joint doctrinal templates for each of the broad COAs (DRAW-D) the enemy may employ. These templates (see Figure 1-2) are constructed by analyzing all available intelligence on the enemy's doctrine and through an examination of the enemy's past operations and exercises.

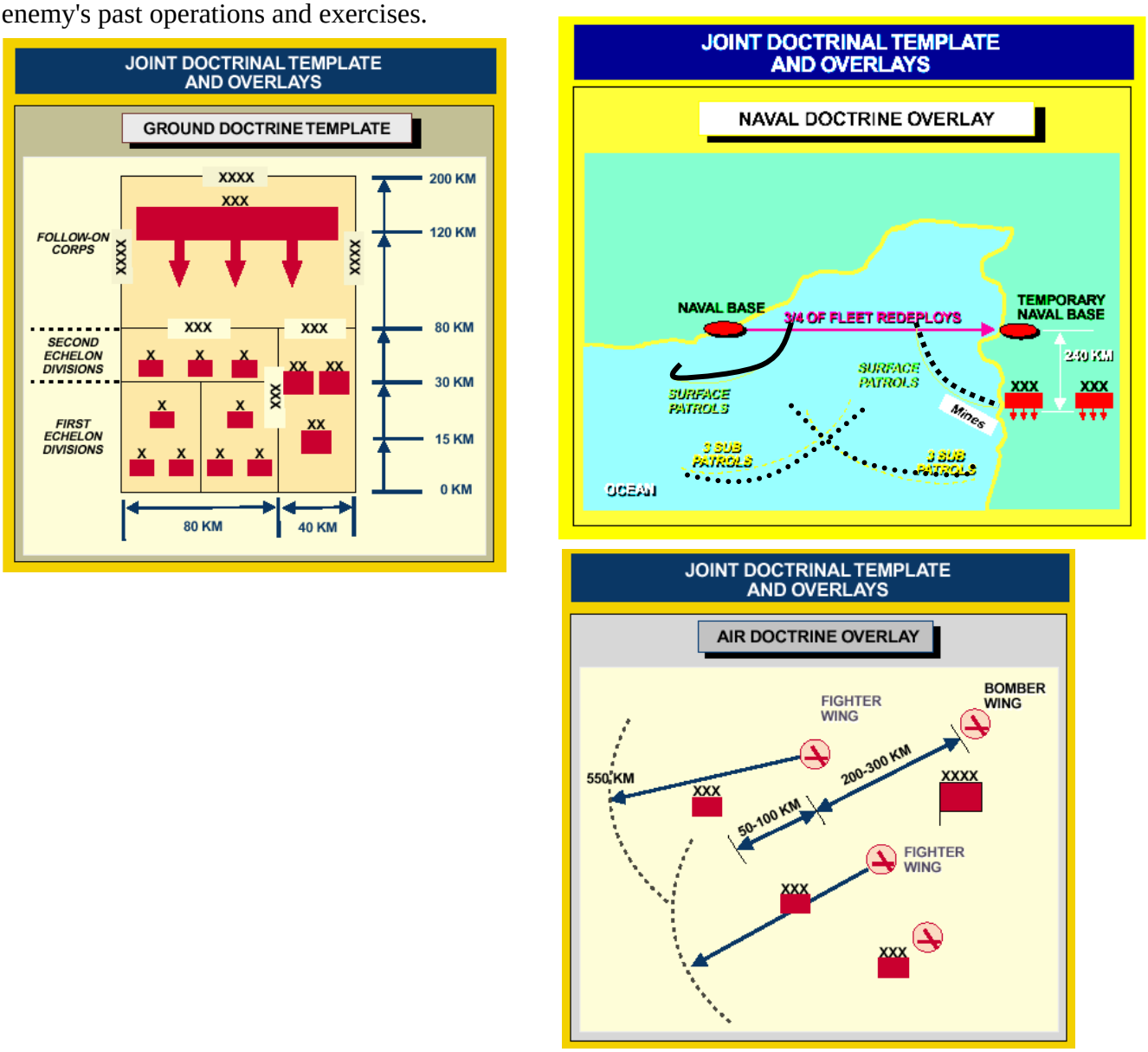


Figure 1-2. Examples of Doctrinal Templates (JP 2-01.3)

b. Description of enemy tactics. In addition to a graphic depiction shown in the template, an enemy model should at a minimum include a written description of an enemy's preferred tactics. These descriptions should answer questions such as: does the enemy typically initiate offensive operations at night; how does the enemy utilize reserve forces; and how does weather

affect the enemy's operations? Time event matrices may be used to show how the enemy might be expected to sequence and synchronize an operation over time.

c. Identification of High Value Targets (HVTs). The enemy model should include a list of HVTs – those assets ***the enemy commander requires*** for the successful completion of the missions that are depicted on the doctrinal templates. For example, an enemy ground force may be vulnerable to amphibious flanking attacks. In such a situation, the enemy's coastal defense assets, such as artillery and anti-ship cruise missiles, may be HVTs. This list of HVTs is developed in collaboration with the Joint Target Coordination Board (JTCB) and may be used later in the planning process to develop specific target sets.

3. Determine the current enemy situation (Situation Template). The intelligence staff uses all available sources, methods, and data bases to determine the enemy's current situation. This includes all significant elements of space, time, and forces addressed in previous steps. Enemy orders of battle, current force status and composition, and other factors are considered in maintaining a current situation plot, which is continuously updated throughout the planning process and the execution of the operation. See Appendix A for an example of a Situation Template.

4. Identify enemy capabilities. The intelligence staff is ready to determine what *broad* COAs the enemy is capable of taking that would allow him to achieve his objectives. Although the full analysis of the enemy's potential COAs will be done in the next JIPB step, here the analysts may begin to refine the DRAW-D general COAs. For example, what kind of attack might the enemy conduct – an envelopment, penetration, or another kind? Are there nonconventional capabilities the enemy might use, such as WMD or information operations? One tool is to compare the current enemy situation with each of the enemy doctrinal templates already constructed. Based on this situation, what does the enemy doctrine suggest it may do? As an example, this analysis might lead to a capability statement such as the following: “The enemy has the capability to interdict friendly SLOCs at chokepoints GREY and BLUE after repositioning units of the southern fleet. Current naval deployments preclude an attack before 4 August.” The J-2 disseminates this evaluation of enemy capabilities to the other staff sections as soon as possible, typically as a written **intelligence estimate** that can support a wide range of further planning efforts. Depending on time available and the requirements of the JFC, however, the evaluation may be disseminated in a briefing or in other forms as desired.

IV. DETERMINE ENEMY COAs (ECOAs). Accurate identification of ECOAs requires the commander and his staff to think "as the enemy thinks." From that perspective, it is necessary first to postulate possible enemy objectives and then visualize specific actions within the capabilities of enemy forces that can be directed at these objectives and their impact upon potential friendly operations. This visualization should *consider enemy actions two levels down*. From the enemy's perspective, appropriate physical objectives might include their own forces or their elements, forces being supported or protected, facilities or LOCs, and geographic areas or positions of tactical, operational or strategic importance.

The commander should not consider ECOAs based solely on factual or supposed knowledge of the enemy intentions. The real COA by the enemy commander cannot be known with any confidence without knowing the enemy's mission and objective – and that information is rarely known. Even if such information were available, the enemy could change or feign his ECOA. Therefore, considering all the options the enemy could physically carry out is more prudent. No ECOA should be dismissed or overlooked because it is considered as unlikely or uncommon, only if impossible.

Potential enemy actions relating to specific physical objectives normally need to be combined to form *statements of ECOAs*. These statements should be broad enough so that the fundamental choices available to the enemy commander are made clear. Once all ECOAs have been identified, the commander should eliminate any duplication and combine them when appropriate.

To develop an ECOA, one should ask the following three questions:

- *Can* the enemy do it?
- *Will* the enemy accomplish his objective?
- *Would it* materially affect the accomplishment of my mission?

The final step in the JIPB process is designed to produce, **at a minimum**, two ECOAs: the enemy's most likely COA and the most dangerous COA. This gives the commander a "best estimate" and "worst case" scenario for planning. However, if time allows, **other ECOAs are also developed.** Each ECOA usually includes a description of expected enemy activities, the associated time and phase lines expected in executing the COA, expected force dispositions, associated Centers of Gravity, a list of assumptions made about the enemy when projecting the COA, a list of refined HVTs, and a list of Named Areas of Interest (NAIs),[3] which are geographical areas where intelligence collection will be focused. There are six sub-steps involved in determining the ECOAs.

1. Identify the enemy's likely objectives and desired end state. The analyst should begin by identifying the enemy's overall desired end state and strategic objective(s)[4] which will form the basis for identifying subordinate objectives—which may be both tangible and intangible.[5] Because hard intelligence may not be available to answer these questions, assumptions will likely have to be made. These assumptions should be coordinated with the Joint Force Commander, J-3, J-5, and other staff planning sections as necessary.

[3] Named Area of Interest—The geographical area where information that will satisfy a specific information requirement can be collected. NAIs are usually selected to capture indications of adversary courses of action, but also may be related to conditions of the battlespace. (JP 2-01.3)

[4] The enemy's Desired End State and Strategic Objective(s) are products of national-strategic analysis and should be provided from those sources.

[5] An example of a tangible objective is "the destruction of the enemy fleet." An intangible objective might be to "split the enemy coalition."

2. Identify enemy Critical Factors[6] / Centers of Gravity (COGs)[7] / Critical Capabilities (CCs) / Critical Requirements (CRs) / Critical Vulnerabilities (CVs)[8] / Decisive Points (DPs).[9] Once the enemy's objectives have been deduced, the staff continues its COG determination by identifying and analyzing the enemy's **critical factors** to determine his **critical strengths** and **critical weaknesses.** These critical factors can be both tangible and intangible and may come from a variety of sources: leadership, fielded forces, resources, infrastructure, population, transportation systems, and internal and external relationships of the enemy, etc. To find **critical strengths**, the analyst searches for those key aspects that determine from which elements the enemy derives freedom of action, physical strength, or the will to fight. From these strengths, the analyst should recognize the enemy's COG.

Analysis of COGs (at each level of war as appropriate) is conducted only *after* gaining an understanding of the broad operational environment (paragraphs I, II, and III of the JIPB above), but before a detailed study is made of the enemy's potential COAs. Analysts must determine whether or not potential COG(s) are truly critical to the enemy's strategy and must thoroughly examine the means by which COG(s) influence and affect enemy strategy and potential COAs. **The determination of the enemy's COG(s) is one of the most critical parts of the JIPB process** because their proper identification can help the JFC better anticipate enemy COAs and will help shape friendly strategy and plans. The next step for the staff once the COGs are determined is to assess the **critical capabilities**, which are the crucial enablers for the COG to function. Logically following this step is the need to identify the **critical requirements**, which are the essential conditions, resources, and means for a critical capability to be operational. At this point, a vulnerability assessment will help identify the **critical vulnerabilities**, which may be exploited to gain access to the COG. During this step, it is important to note that the CVs can be found within critical strengths, capabilities, requirements, or weaknesses. By identifying the CVs, the commander can focus efforts on those critical vulnerabilities that will achieve decisive or significant results and lead to the enemy's COG. **Planners must remain alert for the tendency to focus on weaknesses that bear no relationship to the COG. These are not critical vulnerabilities and simply serve as a means of wasting friendly forces' resources.** Following this, the staff must then categorize the **decisive points**, whose control of offers an advantage to both forces. However, throughout this process, the planner must realize that sometimes a situation may arise in which there are no perceived enemy vulnerabilities and, based on risk assessment, the friendly force must directly focus efforts on the enemy COG. See Appendix C for a more in-depth discussion of COG determination.

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[6] Critical Factors---cumulative term for critical strengths and critical weaknesses of a military or nonmilitary source of power; they can be **quantifiable (tangible) or unquantifiable (intangible)**; critical factors are present at each level of war; they require constant attention because they are relative and subject to changes resulting from actions of one's own forces or of the enemy's action. (Vego, Milan ***Operational Warfare***, Naval War College, 2000).

[7] If the unit conducting the CES is a tactical headquarters, you may wish to identify a tactical COG.

[8] Critical Vulnerabilities--weaknesses (and sometimes strengths) in relationship to the COG, that are open to attack or can be exploited by the opposing force. (Vego, Milan ***Operational Warfare***, Naval War College, 2000)

[9] Decisive Point--a geographic location or source of military or nonmilitary power whose destruction or capture, control or defense, or continuous surveillance and monitoring would give immediate and marked advantage over the opponent in accomplishing one's military objective. (Vego, Mila ***Operational Warfare***, Naval War College, 2000)

Enemy Center of Gravity Determination

Identify

1a. Strategic Objective(s)

1b. Operational Objective(s)

2a. Critical Strengths

2b. Critical Weaknesses

3a. Strategic COG

3b. Operational COG

4. Critical Capabilities

6. Check CVs

5. Critical Requirements

7. Decisive Points

3. Identify friendly objectives and critical factors. Though **not** a product of the JIPB process, in order for the J2 to properly assess the enemy's potential ECOAs, which should focus on defeating the *friendly* COGs, he needs to have a full appreciation of the *friendly* objectives, critical factors, COGs, critical vulnerabilities, and decisive points.

✯ **ATTENTION**: This sub-step **requires** the intelligence analysts to coordinate with Joint Planning Group and others to determine *friendly* critical factors such as strengths, weaknesses, and COG(s). *We will revisit this information again during Mission Analysis.*

Friendly Center of Gravity Determination

Identify

1a. Strategic Objectives

1b. Operational Objectives

2a. Critical Strengths

2b. Critical Weaknesses

3a. Strategic COG

3b. Operational COG

4. Critical Capabilities

6. Check CVs

5. Critical Requirements

7. Decisive Points

4. Identify the full set of ECOAs available to the enemy. In this sub-step, the preliminary list of ECOAs (developed from DRAW-D) is reviewed and analyzed against the lists that have been made of enemy objectives and the friendly critical factors as seen by the enemy. Additional ECOAs are developed and a consolidated list of all potential ECOAs is constructed. Each identified ECOA is examined to determine whether it meets the following tests:

- **Suitability:** does the ECOA have the potential to accomplish the enemy's objective?
- **Feasibility:** does the enemy have sufficient space, time, and forces to execute the ECOA?
- **Acceptability:** is the amount of risk associated with the ECOA likely to exceed the level of risk the enemy will accept?
- **Uniqueness:** each ECOA must be significantly different from the others, or else it should be considered a variation, branch or part of another ECOA.
- **Consistency with doctrine:** does this ECOA appear to be consistent with the enemy's doctrine, TTP, and observed patterns of operations?

(*Joint Pub 2-01.3*)

In applying these tests the analyst must always be careful not to discard an ECOA just because it appears unacceptable, inconsistent with past practices, etc., *from our own perspective*. These tests are useful tools in determining which ECOAs the enemy might be likely to follow, but because our understanding of the enemy's thinking will never be perfect, we must be cautious not to apply these tests too stringently. An attempt should be made to anticipate possible "wildcard" COAs the enemy might use. Such asymmetric or unexpected ECOAs could be the result of either a careful, deliberate strategy, or of a miscalculation on the part of the enemy—but they can be extremely dangerous in either case. Planners should also be careful not to "mirror image"—assuming the enemy would react as we would.

ECOA #1 REDLAND initially conducts joint operations to disrupt JTF Blue Sword forced entry operations, and upon establishment of the JTF Blue Sword in REDLAND, the REDLAND armed forces disperse into small-unit formations in the mountains and cities and initiate insurgency operations to defeat the JTF ground forces.

Example ECOA

ECOAs
ECOA #1
ECOA #2
ECOA #3
ECOA #4

5. Evaluate and prioritize each ECOA. All of the identified ECOAs are evaluated and ranked according to their probability of adoption.[10] This prioritized list is intended to provide commanders and staffs with a starting point for the development of an OPLAN that takes into consideration the most likely, as well as the most dangerous, ECOAs. Developing this list requires an analysis of the situation from the enemy's perspective, using what may be known about the enemy's *intentions*. This knowledge will never be complete and much of this step is based on assumptions rather than facts.

Not all potential ECOAs need be retained in this step. Those that would not affect the friendly mission and those that are clearly unfeasible are discarded at this point. Potential ECOAs should not be discarded merely because they are considered unlikely; retain it if an ECOA would affect the mission, but list it low in probability as appropriate. Analysts must also be on guard against enemy deception efforts. The enemy may deliberately adopt a less than optimal ECOA in order to maximize surprise or may gradually increase preparations for a specific ECOA over a lengthy period of time, thereby psychologically conditioning the JIPB analyst to accept that level of activity as normal and not threatening. **If an ECOA is discarded, to avoid confusion, it is strongly recommended that you do not renumber the ECOAs**.

After listing the ECOAs in the relative probability of adoption, a list of enemy vulnerabilities should be compiled. These are vulnerabilities that could be exploited by friendly forces and it could be a general list or tied to specific ECOAs. This list will aid in later steps of the planning process when friendly COAs are compared against ECOAs and the advantages and disadvantages of each are evaluated.

[10] Ranking is recommended by the J2 and approved by the commander.

	Retained ECOAs (Prioritized)	Vulnerability(s)
ECOA #		
ECOA #		
ECOA #		
ECOA #		

Example Prioritization of Retained ECOAs

	Retained ECOAs (Prioritized)	Vulnerability(s)
ECOA # 3	REDLAND conducts a two pronged ground attack against the APOD with the 3rd RGB from the North and the 1st RGB from the South, with supporting air operations. **(Most Likely)**	• No operational Reserves remaining • Extended LOCs • Complex C3, little experience
ECOA # 4	REDLAND conducts a delay and interdicts friendly APODs / SPODs	• Weak maritime interdiction capability • Limited Battlespace for delay
ECOA # 1	REDLAND initially conducts joint operations to disrupt JTF Blue Sword forced entry operations, and upon establishment of the JTF Blue Sword in REDLAND, the REDLAND armed forces disperse into small-unit formations in the mountains and cities and initiate insurgency operations to defeat the JTF ground forces. **(Most Dangerous)**	• Limited popular support • Limited sustainment capability • Centralized C3 required, minimal capability

6. Develop each ECOA in the amount of detail time allows. Depending on the amount of time available for analysis and planning, each ECOA is developed in sufficient detail to describe: the type of military operation involved; the earliest time military action could commence; the location of the sectors, zones of attack, avenues of approach, and objectives that make up the COA; and the expected scheme of maneuver and desired end state. ECOAs will usually be developed in the order of their probability of adoption and should consist of a situation sketch/template, a narrative description, and a listing of HVTs.

The **situation template** (see Appendix A) for each ECOA will normally consist of a Modified Combined Obstacle Overlay, which depicts the battlespace, together with a doctrinal template or model that shows how the enemy would be expected to act in that environment. Whenever possible, Time Phase Lines (TPLs) should be placed on the situation template to depict the expected progress of enemy force movements (such as D+1, D+2, etc.). A **situation matrix** (see Appendix A) that depicts the expected progress of enemy activity across time in a spreadsheet format may also be used. This technique is most often seen in land-centric operations.

The ECOA **narrative description** accompanies the situation template and usually addresses the earliest time the ECOA could be executed, location of the main effort, supporting operations, time and phase lines. In addition, critical decisions that the enemy commander must make during implementation of the ECOA are described in terms of their location and space as decision points.

HVTs have been initially identified in earlier JIPB steps. They should be refined and reevaluated at this point, identified on the templates, and coordinated with the staff targeting elements for possible targeting during combat.

7. Identify initial collection requirements. Once the likely ECOAs are determined, the challenge becomes determining which one the enemy will actually adopt. In this sub-step, the analyst attempts to identify specific areas and activities which, when observed, will reveal which COA the enemy has chosen. The geographic areas where you expect key events to occur are **called Named Areas of Interest** and the activities themselves are called **indicators**. Using a situation matrix, an **event template** graphic (see Appendix A), or other tool, the intelligence staff begins to task the appropriate collection systems and analytical assets to watch for indicators in given NAIs.

PART 2: MISSION ANALYSIS

I. The commander is responsible for analyzing the mission and restating the mission for subordinate commanders to begin their own estimate and planning efforts. **Mission analysis** is used to study the assigned mission and to identify all tasks necessary to accomplish it. Mission analysis is critical because it provides direction to the commander and the staff, enabling them to focus effectively on the problem at hand.

During the mission analysis process, it is essential that the tasks (specified and implied) and their purposes are clearly stated to ensure planning encompasses all requirements; limitations (restraints – can't do, or constraints – must do) on actions that the commander or subordinate forces may take are understood; and the correlation between the commander's mission and intent and those of higher and other commanders is understood.

When the commander receives a mission tasking—normally through a WARNING ORDER (WO) during Crisis Action Planning (CAP) or PLANNING GUIDANCE during Deliberate Planning Process—analysis begins with the following questions:

- **What tasks must my command do for the mission to be accomplished?**
- **What is the purpose of the mission received?**
- **What limitations have been placed on my own forces' actions?**
- **What forces/assets are available to support my operation?**

Once these questions have been answered, the commander should understand the mission. The commander should become familiar with the area and the situation before initiating analysis and issuing planning guidance, particularly if this is a mission not anticipated by the command. Pertinent and significant facts are identified, and the initial assumptions to be used in the estimate process are assessed to decide their current validity.

II. Mission analysis normally contains the following steps:

- Determine planning facts
  - Determine the source(s) of the mission.
  - Determine who are the "supporting" and "supported" commanders.
  - State Higher Commander's mission.
  - State Higher Commander's intent.
  - Identify specified, derive implied, and determine essential tasks.
  - Identify externally imposed limitations affecting the mission.
  - Identify available forces and assets and noted shortfalls.
  - Identify (planning) assumptions.
- Conduct initial risk assessment.
- Develop the proposed mission statement.
- Provide a Mission Analysis Brief
- Receive the Commander's Planning Guidance
- Receive the Commander's Intent.

- Issue Commander's Planning Guidance
- Issue WARNING ORDER to subordinate commands.

1. Determine Planning Facts: The essence of the Mission Analysis step is to ascertain **"What does the organization know about the current situation and status?"** The following paragraphs should lead the staff through the discovery of those facts.

2. The Source(s) of the Mission: Normally found in a Higher HQ OPORD/OPLAN, planning directive, or WARNING ORDER. Depending on the scope of the operation, consider also reviewing applicable UNSCRs, alliance directives, National Security Presidential Decision Directives, and other authoritative sources for additional information.

3. Identify the "Supported" and "Supporting Commanders" and Agencies: The staff should be clear in their understanding of support relationships. This information will also be normally found in the Source of Mission document (s).

4. Analyze the Higher Commander's Mission: The higher commander's mission statement—normally contained in Higher Commander's directive—and the capabilities and limitations of friendly forces must be studied. The commander must draw broad conclusions as to the character of the forthcoming military action. However, the commander should not make assumptions about issues not addressed by the higher commander and if **the higher headquarters' directive is unclear, ambiguous, or confusing, the commander should seek clarification.**

Higher Commander's Mission:

5. State the Higher Commander's Intent: A main concern for a commander during mission analysis is to study not only the mission, but also the intent of the higher commander. Within the breadth and depth of today's battlespace, effective decentralized control cannot occur without a shared vision. Without a commander's intent that expresses that common vision, unity of effort is difficult to achieve. In order to turn information into decisions and decisions into actions that are "about right," commanders *must* understand the higher Commander's Intent.

While the Commander's Intent had previously been considered to be inherent in the mission and concept of operations, most often you will see it explicitly detailed in the plan/order. Successfully communicating the more enduring intent allows the force to continue the mission even though circumstances have changed and the previously developed plan/concept of operations is no longer valid.

The higher Commander's Intent is normally found in paragraph 3, Execution of the higher commander's directive, although its location in the text may vary. Sometimes the higher Commander's Intent may not be transmitted at all. When this occurs, the subordinate commander and staff should derive an intent statement and confirm it with the higher headquarters. The intent statement of the higher echelon commander should then be repeated in paragraph 1, Situation, of your own Operations Plan (OPLAN) or Operations Order (OPORD) to ensure that the staff and supporting commanders understand it. Each subordinate Commander's Intent must be framed and embedded within the context of the higher Commander's Intent, and they must be "nested" both vertically and horizontally to achieve a common military end state throughout the command.[11] The intent statement must be within the framework of the next higher commander.

A Commander's Intent is broader than the mission statement and it is a concise, free form expression of the *purpose of the force's activities, the desired results, and how actions will progress toward that end*. It is a clear and succinct vision, of how to conduct the action. In short, it links the mission and the concept of operations. The intent expresses the broader purpose of the action that looks beyond the "why" of the immediate operation to the broader context of that mission and may include "how" the posture of the force at the end state of the action will transition to or facilitate further operations (sequels).

A Commander's Intent is not a summary of the concept of operations. It does not tell specifically "how" the operation is being conducted. It must be crafted to allow subordinate commanders sufficient flexibility and freedom to act in accomplishing their assigned mission(s) even in the "fog of war." The intent consists of three components:[12]

Purpose: the reason for the military action with respect to the mission of the next higher echelon. The purpose explains why the military action is being conducted. This helps the force pursue the mission without further orders, even when actions do not unfold as planned. Thus, if an unanticipated situation arises, participating commanders will understand the purpose of the forthcoming action well enough to act decisively, and within the bounds of the higher commander's intent.

Method: the "how," in doctrinally concise terminology, explains the offensive form of maneuver, the alternative defense, or other action to be used by the force as a whole. Details as to specific subordinate missions are not discussed.

End State:[13] describes what the commander wants to see in military terms ("military landscape") after the completion of the mission by his own and friendly forces.

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[11] Nested refers to the concept of complementary intents among the joint force commands to ensure all are similarly focused.

[12] There is no specified joint format for Commander's Intent, though the offered construct is generally accepted.

[13] this should not be confused with the concept of **"Desired End State,"** which reflects a broader view of all elements of power and the conditions that the highest political leadership of national or alliance/coalition forces wants in a given theater after the end of hostilities. (Vego, Milan ***Operational Warfare***, Naval War College, 2000)

The commander is responsible for formulating the single unifying concept for a mission. Having developed that concept, the commander then prepares his intent statement from the mission analysis, the intent of his higher commander, and his own vision to ensure his subordinate commanders are focused on a common goal. The task here is to clearly articulate the intent so it is understandable two echelons below. When possible, the commander delivers it, along with the order (or plan), personally (and/or via VTC). Face-to-face delivery ensures mutual understanding of what the issuing commander wants by allowing immediate clarification of specific points. While intent is more enduring than the concept of operations, the commander can, and should, revise his intent when circumstances dictate.

Higher Commander's Intent:

6. Determine specified, implied, and essential tasks: Any mission consists of two elements: the task(s) to be accomplished by one's forces and their purpose. If a mission has multiple tasks, then the priority of each task should be clearly expressed. Usually this is done by the sequence in which the tasks are presented. There might be a situation in which a commander has been given such broad guidance that all or part of the mission would need to be deduced. Deduction should be based on an appreciation of the general situation and an understanding of the superior's objective. Consequently, deduced tasks must have a reasonable chance of accomplishment and should secure results that support the superior commander's objective.

a. State the task(s): The task is the job or function assigned to a subordinate unit or command by higher authority. A mission can contain a single task, but it often contains two or more tasks. If there are multiple tasks, they normally will all be related to a single purpose.

Depending on the objective to be accomplished, tactical, operational, and strategic tasks are differentiated. Examples of **tactical** tasks are: destroy enemy convoy TANGO; seize enemy naval base (airfield) ZULU; destroy enemy submarines in combat zone ROMEO; seize hill BRAVO, etc. Examples of **operational** tasks are: obtain and maintain sea control in maritime operations area ECHO; obtain air superiority in air area of operations HOTEL; conduct amphibious landing operation in BRAVO amphibious objective area (AOA); conduct a blockade of the CHARLIE Strait; conduct amphibious defense in the ALFA area of the coast, etc. Examples of strategic tasks are: destroy Purple armed forces in the Theater of Operations; seize control of country RED; destroy RED sea-based nuclear deterrent forces, etc.

(1) ***Specified Task(s)*:** Tasks *listed* in the mission received from higher commander's headquarters are specified or stated (assigned) tasks. They are what the higher commander wants accomplished. The commander's specified tasks are normally found in paragraph 3b (Execution - Tasks) section of the order, but could also be contained elsewhere—for example in coordinating instructions or in annexes (though this should be avoided if possible).

Specified Task(s):

(2) ***Implied Task(s)*:** After identifying the specified tasks, the commander identifies additional major tasks necessary to accomplish the assigned mission. Though not facts, these additional major tasks are implied tasks, which are sometimes deduced from detailed analysis of the order of the higher commander, known enemy situation, and the commander's knowledge of the physical environment. Therefore, the implied tasks subsequently included in the commander's proposed mission should be limited to those considered critical to the accomplishment of the assigned mission. *Implied tasks do not include routine or standing operating procedures (SOPs) that are performed to accomplish any type of mission by friendly forces*. Hence, tasks that are inherent responsibilities of the commander (providing protection of the flank of his own unit, reconnaissance, deception, etc.) are not considered implied tasks. The exceptions are only those routine tasks that cannot successfully be carried out without support or coordination of other friendly commanders. An example of an implied task is if your command was given a specified task to seize a seaport facility, the implied task might be the requirement to establish sea control within the area of operations before the assault.

Implied Task(s):

(3) ***Essential Task(s)*:** Essential tasks are determined from the list of both specified and implied tasks. They are those tasks that must be executed to achieve the conditions that define mission success. Depending on the scope of the mission's purpose, some of the specified and implied tasks might need to be synthesized and re-written as an essential task. **Only essential tasks should be included in the mission statement.**

Essential Task(s):

b. State the Purpose: The purpose follows the statement of task(s). To clearly delineate the two, the statement "in order to" should be inserted between the task(s) and purpose. Purpose is normally found at the beginning of the "Execution" section of the superior's directive. If the superior's directive also contains an intent statement, that should also be reviewed to help analyze the "purpose" of the operation. **The purpose always dominates the tasks.** A task or tasks can be accomplished or changed due to unforeseen circumstances, but the purpose remains essentially the same if the original mission remains unchanged.[14] Purpose should answer the "why" question.

Example; "JTF Blue Sword will seize seaport Y (*task*) **in order to** sever Country Z's Lines of Communication (*purpose*)."[15]

Purpose:

7. Identify Externally Imposed Limitations:

a. Restraints (Can't Do): Restraints or restrictions are things the higher commander prohibits subordinate commander(s) from doing (for example, not conducting reconnaissance flights beyond Latitude 52°, not to approach the enemy coast closer than 30 nautical miles, specific Rules of Engagement (ROE) guidance, etc.).

The commander and staff should consider the impact of the stated ROE on their ability to accomplish the mission (for example, access to or through sovereign land, sea, or airspace as a legal/political consideration). Any requirement to change the ROE, either relaxation or more restrictive, must be considered and addressed when developing the COAs.

[14] Be alert for "Mission Creep." As the operation proceeds and tasks with no linkage to the *purpose* are added, the force is likely experiencing Mission Creep. The commander should initiate a new CES at this point to ensure the reliability of the operation.
[15] If the mission statement supports a complex, multi-phased operation or campaign, it may require separate purpose and supporting tasks for each major phase.

Restraints (Can't Do):

b. Identify Externally Imposed Constraints (Must Do): The superior's directive normally indicates circumstances and limitations under which one's own forces will initiate and/or continue their actions. Therefore, the higher commander may impose some constraints on the commander's freedom of action with respect to the actions to be conducted. These constraints will affect the selection of COAs and the planning process. Examples include tasks by the higher command that specify: "Be prepared to . . . "; "Not earlier than . . . "; "Not later than . . . ."; "Use coalition forces…" Time is often a constraint, because it affects the time available for planning or execution of certain tasks.

Constraints (Must Do):

Constraints and restraints collectively comprise "limitations" on the commander's freedom of action. Remember restraints and constraints do not include doctrinal considerations. Do not include self-imposed limitations during this portion of the CES.

8. Analysis of Available Forces and Assets:

a. Review forces that have been provided for planning and their locations (if known). Determine the status of reserve forces and the time they will be available.

b. Referring back to paragraph 6 in which you identified your specified and implied tasks, now determine what broad force structure and capabilities are necessary to accomplish these tasks (e.g., Is a Carrier Battle Group or forcible entry capabilities required?). Note: The service component Liaison Officers (LNOs) and planners are critical players in this step.

c. Identify shortfalls between the two.

CAUTION: This is just an initial JTF force structure analysis. More specific requirements will be determined after the Courses of Action have been developed and analyzed!

Forces Available and Noted Shortfalls by Task or Function
Example: **Task**: Seize APOD. **Observation:** No forced entry capability (MEU, Airborne)

☆ **REMINDER During** the JIPB portion of this Step, the J2 was provided the ***Friendly*** Objectives, Critical Factors, Center(s) of Gravity, Critical Vulnerabilities, and Decisive Points. These are Joint Planning Group (JPG) products from the Mission Analysis. If not already accomplished, this friendly information should now be identified. See pages 1-19 thru 1-21. ☆

9. Identify Higher Command's Assumptions and Create Your Own Assumptions: An assumption is used in the absence of facts that the commander needs to continue planning. An assumption is a supposition on the current situation (or a supposition on the future course of events), which is (1) assumed to be true without positive proof, and (2) necessary to enable the commander, during planning, to complete an estimate of the situation and decide the course of action (Joint Pub 1-02). An assumption encompasses the issues over which a commander normally does not have control. If you make an assumption, you must direct resources towards turning that assumption into a fact (i.e., directing intelligence collection, RFIs, etc) and/or developing a branch plan.

Assumptions are made for both friendly operations and the enemy. The commander can assume the success of friendly supporting actions that are essential for success, but cannot assume success for the actions of his own forces—no matter which COA he chooses. Planners should normally assume the worst-case scenario.[16] In other words, they must assume that the opponent will use every capability at his disposal and will operate in the most efficient manner possible. To dismiss enemy options as unlikely could dangerously limit the depth and validity of planning. Planners should not assume away an enemy capability. They cannot assume a condition simply because of a lack of accurate knowledge of friendly forces or a lack of intelligence about the enemy.

16 Exception is when your command possesses **accurate and reliable** intelligence to the contrary.

Key characteristics of assumptions are that they are reasonable suppositions— **logical** and **realistic**; and they must be **essential** for planning to continue. Existing capabilities should not be treated as assumptions. Examples of inappropriate assumptions include: "Our forces will flow into theater without delay"; "necessary logistics resources, including support to available operational forces . . . will be provided from CONUS as required"; "communications will be provided as required"; etc. An appropriate assumption might be, "Country Orange will remain neutral during the operation."

Subordinate commanders must treat assumptions given by the higher headquarters as facts. If the commander or staff does not concur with the higher commander's planning assumptions, they should be challenged before continuing with the planning process. All assumptions should be continually reviewed.

Assumptions are used in the commander's estimate at each command echelon. Usually, commanders and their staffs should make assumptions that fall within the scope of their battlespace. We often see that the higher the command echelon, the more assumptions that will be made. Assumptions enable the commander and the staff to continue planning despite a lack of concrete information. They are artificial devices to fill gaps in actual knowledge, but they play a crucial role in planning. A poor assumption may partially or completely invalidate the entire plan—to account for a possible wrong assumption, planners should consider developing branches to the basic plan. Assumptions should be kept at a minimum. For examples of planning assumptions see Appendix D to this workbook.

Assumptions are not rigid. Their validation will influence intelligence collection. They must be continuously checked, revalidated, and adjusted until they are proven as facts or are overcome by events.

Higher Command's Assumptions:

Own Assumptions:

Tests for an Assumption:
Is it logical?
Is it realistic?
Is it essential for planning?

10. Conduct an Initial Risk Assessment: In order to advise the Commander of initial apparent risks, the staff should conduct an initial risk assessment. Risks, and their mitigation, are addressed again in STEP 2 Developing COAs. See Appendix E Risk Assessment for more information.

a. There may be risks associated with:

(1) Mission (risks the Commander is willing to take for mission accomplishment, e.g., forward presence vs. risk of provocation).
(2) Force protection issues (e.g., a high risk of significant casualties, medium risk of fratricide, low risk of terrorist activities in the JOA).
(3) Time available as provided by Higher HQ-imposed limitations.

b. Higher HQ might state or imply acceptable risk (e.g., could be addressed in the Higher Commander's intent, concept of operations, additional guidance).

c. Individual staff sections determine risks from their own situational analysis and provide them to the Joint Planning Group / Operational Planning Group (JPG/OPG)[17] through their representatives.

d. The JPG/OPG determine the overall risks and consider potential methods for risk mitigation.

Initial Risk Assessment:

11. Develop Proposed Mission Statement: The product of the mission analysis is the proposed mission. It must be a clear, concise statement of the essential (specified and implied) tasks to be accomplished by the command and the purpose(s) of those tasks. Multiple tasks are normally listed in the sequence to be accomplished. Although several tasks may have been identified during the mission analysis, the proposed mission includes only those that are essential to the overall success of the mission. The tasks that are routine or inherent responsibilities of a commander are not included in the proposed mission. The external limitations, assumptions and facts identified in STEP 1 are used later during the formulation of COAs. **The proposed mission becomes the focus of the commander's and staff's estimates**. It should be reviewed at each step of the CES process to ensure planning is not straying from this critical focus (or that the mission requires adjustment). It is contained in paragraph 1 of the commander's estimate and paragraph 2 of the basic OPLAN or OPORD.

17 OPG--Operational Planning Group. JPG--Joint Operational Planning Group. Those members of the service components or joint staff engaged in the planning process.

All efforts by the commander and the staff should be mission-oriented. Losing sight of the assigned mission will result in a confused analysis, which may ultimately lead to failure. The mission statement must contain all of the following elements:

- Who (organization, group of forces) will execute the action?
- What type of action (for example, deterrence, defeat, evacuation, etc.) is contemplated?
- When will the action begin?
- Where will the action occur (area of operations and objectives)?
- Why (the purpose of the operation)?

The element of "what" states the mission essential tasks. The unit mission statement will include on-order missions; be-prepared missions will be in the concept of operations.[18]

Sample Proposed Mission Statement

On order, JTF Blue Sword conducts operations to seize lodgments in REDLAND and defeat the REDLAND armed forces in order to eliminate terrorist safe havens in the region.

Proposed Mission Statement:

[18] An on-order task is a task that will be executed; only the timing of the execution is unknown. A be-prepared task is a task that **might** be executed, and as a contingency, the tasked unit will be prepared to execute the task if so directed. Since a be-prepared task is by definition a contingency, it cannot be considered an essential task and as such, should not appear in the mission statement.

MISSION ANALYSIS BRIEF

Upon conclusion of the Mission Analysis and JIPB, the staff will present a Mission Analysis Brief to the commander. The purpose of the Mission Analysis Brief is to provide the commander with the results of the staff's analysis, offer a forum to surface issues that have been identified, and an opportunity for the commander to refine his guidance to the staff and to approve or disapprove the staff's analysis. Though unit Standard Operating Procedures (SOPs) may dictate the specific format for a Mission Analysis Brief, the following example format (see Figure 1-3) is provided:

MISSION ANALYSIS BRIEFING

BRIEFER	SUBJECT
Chief of Staff or J5/J3	- Purpose and agenda - Area of Operations (Joint Operations Area)
J2	- Initial intelligence situation brief (could also include elements of the Joint Intelligence Preparation of the Battlespace)
J5/J3	- Commander's mission, intent and concept of operations - Forces currently available (US and multinational) - Assumptions - Limitations — Must do and cannot do - Centers of gravity/decisive points — Enemy and friendly - Tasks to be performed — Specified — Implied — Essential - *Initial* JTF force structure analysis - Risk assessment - End state - Proposed mission statement - Proposed Initial CCIR* - Time analysis—Including projected planning milestones
J1**	- Facts, assumptions, conclusions — Personnel actions — Personnel services — Other personnel related support

J4**	— Facts, assumptions, conclusions — Supply — Services — Health services — Transportation — Others
J6**	- Facts, assumptions, conclusions
Others**	- Others as appropriate to the mission

* Optional—depends on SOP.

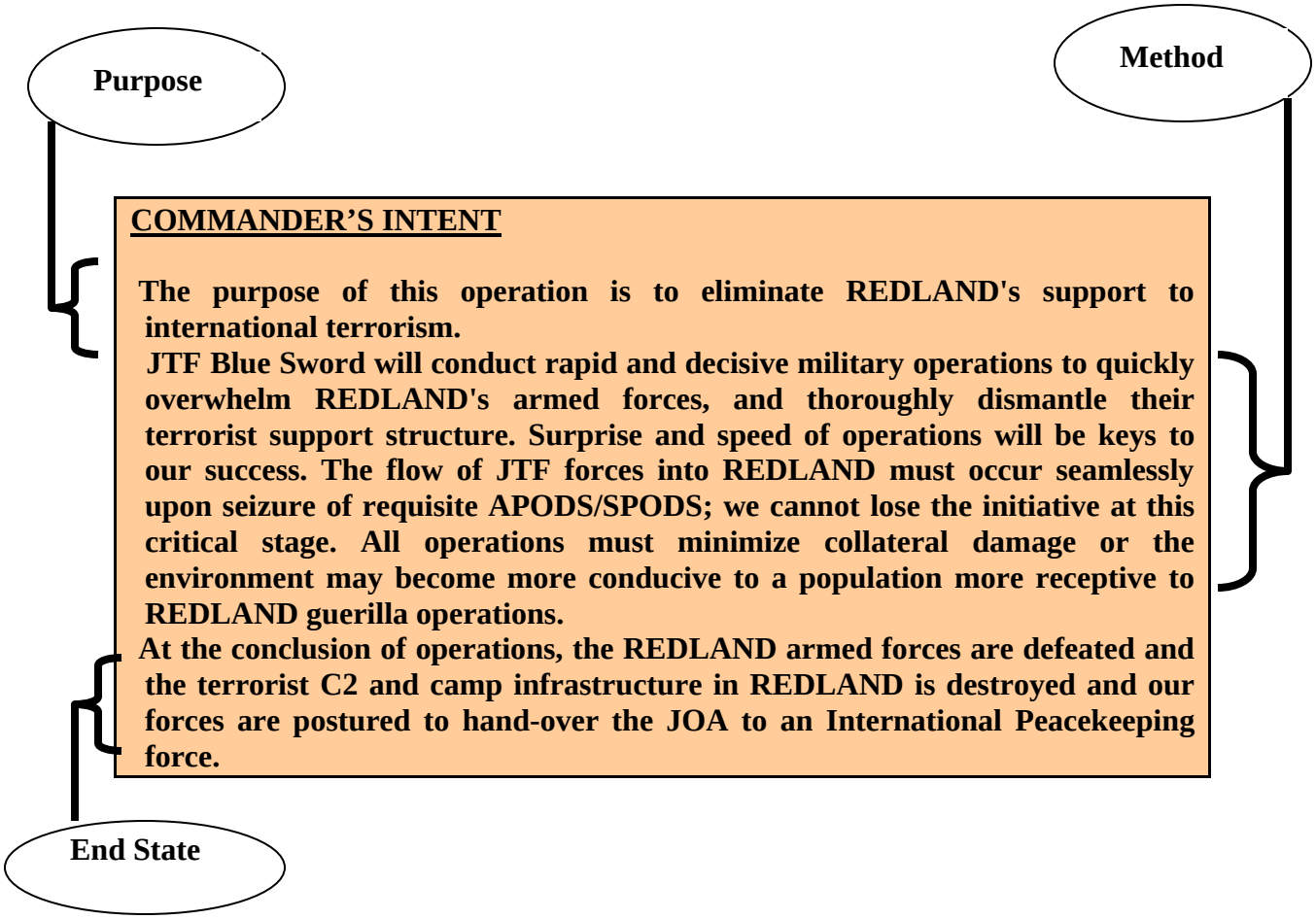
** Should only be amplifications that each of these staff sections believe necessary for the commander to hear.

Figure 1-4. Example Mission Analysis Briefing Format

COMMANDER'S GUIDANCE

1. Commander's Intent: The commander will normally issue an **initial intent** (see discussion in Part 2, paragraph 5, pp. 1-26 through 1-27) with the planning guidance and in the WARNING ORDER. The commander's intent should focus on the purpose of the forthcoming action for subordinate units two levels down. The intent statement in an OPORD or OPLAN is placed in paragraph 3, Execution.

Remember, the Commander's Intent must be crafted to allow subordinate commanders sufficient flexibility in accomplishing their assigned mission(s). It must provide a "vision" of those conditions that the commander wants to see after the military action is accomplished. The commander must define how the "vision" will generally be accomplished by forces and assets available, and the conditions/status of friendly and enemy forces with respect to the battlespace as the end state. The commander, and not his staff, writes the best Commander's Intent. There are a variety of techniques, which may be used in crafting an intent, one is offered below.



Sample Commander's Intent Statement for a JTF Commander

Commander's Initial Intent:

2. Commander's Critical Information Requirement: An element of information personally required and approved by the commander that directly affects his decision-making. CCIRs result from the analysis of Information Requirements (IR) against the mission and Commander's Intent and are normally limited in number (often 5 or fewer items) to enhance comprehension. They help the commander filter information available to him by defining what is important to mission accomplishment. They also help focus the efforts of his subordinates and staff in allocating resources and to assist staff officers in making recommendations. The CCIRs directly affect the success or failure of the mission and they are time-sensitive in that they drive commanders' decisions at decision points. The CCIRs contain two key subcomponents of information requirements:

- **Priority Information Requirements—**What do I need to know about the enemy (as discussed in the JIPB section of this workbook)?
- **Friendly Force Information Requirements (FFIR)—**What do I need to know about the capabilities of our own and adjacent friendly forces (what information must we track on our own forces)?

The key question is, "What does the commander need to know in a specific situation to make a particular decision in a timely manner?" The commander decides what information is critical, based on his experience, the mission, the higher Commander's Intent, and input from the staff. CCIRs are situation-dependent and specified by the commander for each operation. He must continuously review the CCIRs during the planning process and adjust them as situations change. During the CES, initial CCIRs are identified in Step 1, Part 1, "JIPB." The staff often nominates proposed initial CCIRs for the Commander's approval during the Mission Analysis briefing. The CCRIs will be revised and updated in Step 3, "Analyze Friendly COAs."

Initial CCIR:

3. Commander's Planning Guidance: The commander approves or modifies the proposed mission and provides his staff and the subordinate commanders and their staffs initial planning guidance. The purpose of the Commander's Guidance is to focus staff effort in a meaningful direction to develop courses of action that reflect the commander's style and expectations. The content of planning guidance varies from commander to commander and is dependent on the situation and time available. **This guidance is essential for timely and effective COA development and analysis.** The guidance should precede the staff's preparation for conducting their respective staff estimates. The commander's responsibility is to implant a desired vision of the forthcoming combat action into the minds of the staff. Enough guidance (preliminary decisions) must be provided to allow the subordinates to plan the action necessary to accomplish the mission consistent with the intent of the commander two echelons above. The Commander's Guidance must focus on the essential military tasks and associated objectives that support the accomplishment of the assigned mission.

The commander may provide the planning guidance to the entire staff and/or subordinate commanders or meet with each staff officer or subordinate unit commander individually as the situation and information dictates. The guidance should be published in written form. No format for the planning guidance is prescribed; however, the guidance should be sufficiently detailed to provide a clear direction and to avoid unnecessary effort by the staff or subordinate commanders. The more detailed the guidance is, the more specific staff activities will be. And, the more specific the activities, the more quickly the staff can complete them. Yet, the more specific the activities, the greater is the risk of overlooking or inadequately examining other details that may affect mission execution.

Commander's Planning Guidance should *consider* addressing:

- Specific course(s) of action to consider or not to consider, both friendly and enemy, governing factors to use for COA assessment, and the priority for addressing them.
- Initial CCIR.
- Initial intent.
- Initial risk assessment.
- Intelligence, Surveillance and Reconnaissance (ISR) priorities.
- Military deception guidance (this guidance may be limited in dissemination for OPSEC purposes).
- Fires (lethal and non-lethal) direction.

- Effects (lethal and non-lethal) direction.
- Targeting direction.
- Security measures to be implemented.
- The time plan (back briefs, rehearsals, movement, etc.).
- The type of order to be issued.
- Collaborative planning sessions to be conducted.
- Deployment priorities.
- The type of rehearsal to conduct.
- Additional specific priorities for sustainment.
- Any other information the commander wants the staff and/or components to consider.

Commander's Planning Guidance can be very explicit and detailed, or it can be very broad, allowing the staff and/or subordinate commanders wide latitude in developing subsequent COAs. However, regardless of its scope, the content of planning guidance must be arranged in a logical sequence to reduce the chances of misunderstanding and to enhance clarity. Moreover, it must be recognized that all the elements of planning guidance are only tentative.

The commander may issue additional planning guidance during the decision making process. The focus should remain upon the framework provided in the initial planning guidance. There is no limitation as to the number of times the commander may issue his planning guidance. However, when guidance radically changes prior communications, the commander should clarify why the guidance has changed since some other aspect of the planning process may also be compromised.

Commander's Planning Guidance:

WARNING ORDER

Once the commander approves the mission following the Mission Analysis briefing and evaluates the factors affecting mission accomplishment, a WO will normally be issued to subordinate commanders using the five-paragraph format (SMEAC).

1. Situation	**(S)**
2. Mission	**(M)**
3. Execution	**(E)**
4. Admin and Logistics	**(A)**
5. Command and Control	**(C)**

It serves as a preliminary notice of a forthcoming military action with an understanding that more information will follow after the COA is selected. It is normally issued as a brief written message that lists the available information and required instructions.

The commander and his staff also refine their initial planning timeline for the use of available time. They compare the time needed to accomplish essential tasks to the higher headquarters' time line to ensure mission accomplishment is possible in the allotted time.

The commander and staff specify when and where they will conduct the various briefings that are the result of the planning process, if they will conduct collaborative planning sessions and, if so, when and by what means, and when, where, and in what form they will conduct rehearsals. The commander can maximize available planning time for his own and subordinate units by sending additional WOs as detailed planning develops. This allows parallel planning by subordinate units. The commander also frequently uses LNOs to stay abreast of planning at higher headquarters.

STEP 2: DEVELOPMENT OF FRIENDLY COURSES OF ACTION

A COA is any concept of operation open to a commander that, if adopted, would result in the accomplishment of the mission. For each COA, the commander must envisage the employment of his forces and assets *as a whole—normally two levels down*—taking into account externally imposed limitations, the factual situation in the area of operations, and the conclusions previously drawn up during STEP 1 (JIPB and Mission Analysis).

This step should begin with a review of some key Step 1 information:

- Mission
- Commander's Intent
- Assumptions
- Objectives (enemy & friendly)
- Centers of Gravity (enemy & friendly)
- Decisive Points (enemy & friendly)

After receiving guidance, the staff develops COAs for analysis and comparison. The commander must involve the entire staff in their development. Commander's Planning Guidance and Commander's Intent focus the staff to produce a comprehensive, flexible plan within the time constraints. Direct commander participation helps the staff get quick, accurate answers to questions that occur during the process. COA development is a deliberate attempt to design unpredictable COAs (difficult for the enemy to deduce). A good COA will position the force for future operations and provide flexibility to meet unforeseen events during execution. It also provides the maximum latitude for initiative by subordinates.

The order from higher headquarters normally provides the what, when, and why for the force as a whole. The "who" in the COA does not specify the designation of units; it arrays assets by component (for example, naval, ground, air, space) and by function (intelligence, maneuver, fires, logistics, command and control, protection).

There are normally four steps in COA development:

- Generate options.
- Test for validity.
- Recommend command relationships.
- Prepare COA statements and sketches.

1. Generate Options: A good COA should be capable of defeating all retained enemy COAs. In a totally unconstrained environment, the goal is to develop several such COAs. Since there is rarely enough time to do this, the commander often limits the options with his commander's guidance. The options should focus on enemy COAs arranged in order of probable adoption.

Brainstorming is the preferred technique for generating options. It requires time, imagination, and creativity, but it produces the widest range of options. The staff must be

unbiased and open-minded in evaluating proposed options. Staff members can quickly identify COAs not obviously feasible in their particular areas of expertise. They can also quickly decide if they can modify a COA to accomplish the requirement or eliminate it immediately. If one staff member identifies information that might affect another's analysis, he shares it immediately. This eliminates wasted time and effort. As discussed in STEP 1 when developing possible ECOAs, the staff may wish to use the **DRAW-D**[19] concept to consider ***general*** friendly COAs.

Planners should consider military deception operations for their potential influence on COAs since aspects of the deception operation may influence unit positioning.

Planners next make the initial array of friendly forces. Planners normally array forces two levels down.[20] The initial array of forces focuses on generic units without regard to specific units or task organization, and then considers all force multipliers, i.e., airpower, IO, etc., they must allocate to accomplish the mission.

The initial array identifies the total number of units or assets needed, develops a base of knowledge to make decisions, and identifies possible methods of dealing with the enemy during scheme-of-maneuver development. If the number arrayed is greater than the number available, the shortfall becomes a possible requirement for additional resources or a place to possibly accept risk. See Appendix E for a discussion on risk assessment.

Planners should compare friendly forces against enemy forces to see if there are sufficient forces to accomplish the tasks. Planners should not develop and recommend COAs based solely on mathematical analyses of relative combat power and force ratios. Although some numerical relationships are used in this process, the estimate is largely subjective. It requires assessing both **tangible and intangible factors**, such as friction or enemy will and intentions. Numerical force ratios do not include the human factors of warfare that, many times, are more important than the number of tanks, ships, or airplanes. The staff must carefully consider and integrate the intangible factors into their comparisons. See Appendix B for a discussion on force ratios and relative combat power.

COA development planning should consider all joint force capabilities and focus on contributing to the defeat / neutralization of the enemy's Center of Gravity and the protection of the friendly COG. As identified in STEP 1, Part 1, "JIPB," access to **both** of these COGs is found through the control/neutralization /defeat of identified critical vulnerabilities and decisive points. The COA should mass the effects of overwhelming combat power at these points to achieve a result with respect to the enemy's COG.

[19] DRAW-D may be a less useful technique during the planning for Stability and Support Operations (SASO), since the planning may focus on actions other than those implied by DRAW-D.
[20] The intent of arraying forces two levels down is to assess force requirements and not to micromanage subordinates.

The massing of effects on the COG is considered the **decisive operation**. Next, the staff determines the **shaping operations**—those operations that set conditions for the decisive operation to succeed. The **decisive operations'** purpose directly relates to the mission of the unit; the shaping operation's purpose relates directly to the decisive operation. The staff then determines the essential tasks for the decisive, shaping, and **sustaining operations**--those operations that enable shaping and decisive operations through logistics/supporting activities and battlespace management--to achieve these purposes.

Once staff members have explored each COA's possibilities, they can examine each (by changing, adding, or eliminating COAs as appropriate) to determine if it satisfies the COA-selection criteria. The staff must avoid the common pitfall of presenting one good COA among several "throwaway" COAs. Often the commander will combine COAs or move desirable elements from one to another.

COA#1: JTF Blue Sword conducts airborne and amphibious forced entry operations to seize REDLAND airbase and projects ground forces into REDLAND to defeat the 23rd Red Guard Division and destroy terrorist sites. Air and maritime forces conduct supporting operations and neutralize REDLAND air and naval capabilities.

Sample Tentative COA Statement

List *Tentative* Courses of Action:
COA #1:
COA #2:
COA #3:
COA #4:

2. Test for validity. Before going any further in COA development, the staff should review the tentative COAs for their validity. Test for validity address: suitability, feasibility, acceptability, distinguishability, and completeness.

- **Suitable.** It must accomplish the mission and comply with higher command guidance. However, the commander may modify his guidance at any time. When the guidance changes, the staff records and coordinates the new guidance and reevaluates each COA to ensure it complies with the change.

- **Feasible.** The unit must have the capability and resources to accomplish the mission in terms of available time, space, and resources, within constraints of the physical environment, logistics and sustainability, and in the face of extreme enemy opposition. This requires a visualization of the COA against each ECOA. Innovative COAs take full advantage of the situation and *all* available forces and assets. Any assessment of the feasibility at this point in the estimate is only tentative. The intent here is to discard COAs that are clearly not feasible because available forces and assets are inadequate.

- **Acceptable.** The advantage gained by executing the COA must justify the cost in resources, especially casualties. A COA is considered acceptable if the estimated results are worth the estimated costs—losses of friendly forces versus the mission's purpose—and it complies with higher commander's guidance. Moreover, losses in regard to time, position, or opportunity must be estimated as well. Whether a COA is acceptable it must be considered from both the commander's view and the view of the commander's superior. Must the COA be reconciled with external constraints, particularly ROE? A COA that does not meet this test must be modified to make it acceptable or discarded at this point in the estimate. This assessment is largely subjective. Like the feasibility test, the acceptability of a specific COA can only be tentative at this stage. The prospect of risk needs to be taken into account, and may have to be accepted.

- **Distinguishable.** Each COA must differ *significantly* from the other COAs. The significant differences of each COA is ensured by emphasizing distinctions in regard to: direction/type of the main effort; direction/type of supporting effort; scheme of maneuver (air, land, sea); task organization; phasing/sequencing; anticipated use of reserves; timing (simultaneous or sequential); principal method of combat employment or method[21] of mission accomplishment; and logistics considerations.

- **Complete.** A COA is complete if it includes the following: WHO? (which component commander(s) is/are to conduct combat action(s); WHAT? (the type of combat action: DRAW-D); WHEN? (the time the action will begin); WHERE? (the location of action); HOW? (the method or scheme of employment of forces and assets); and WHY? (the purpose of combat action).

(Joint Pub 5-00.2)

[21] Method differs from scheme of maneuver in that method reflects a markedly different way to accomplish a mission, e.g., blockade versus forced entry.

3. Recommend Command and Control Arrangements: Planners next establish preliminary command and control arrangements to groupings of forces for each COA. This structure should consider the types of units to be assigned to a headquarters or component and its span of control. If planners need additional headquarters, they note the shortage and resolve it later. C2 arrangements take into account the entire battlespace organization. It also accounts for the special C2 requirements of operations that have unique requirements, such as amphibious landings or special operations.

4. Develop the Course of Action statement and sketch for each COA.

a. The course of action statement describes how the forces will accomplish the commander's Intent. It concisely expresses the commander's concept for operations and governs the design of supporting plans or annexes. Planners develop a concept by refining the initial array of forces and using graphic control measures to coordinate the operation and to show the relationship of friendly forces to one another, the enemy, and the battlespace. During this step, units are converted from generic to specific types of units, such as armored or mechanized divisions. The purpose of this step is to clarify the commander's initial intent about the deployment, employment, and support of friendly forces and assets and to identify major objectives and target dates for their attainment. In drafting the tentative concept of operations for each COA should state, in broad but clear terms, what is to be done, the size of the forces deemed necessary, and time in which force needs to be brought to bear.

A course of action statement should be simple, clear, and complete. It should address all the elements of organizing the battlespace. Depending on the time available and the complexity of the operations, the statement may include some of the following:

- The purpose of the combat action.
- When forces will be deployed.
- A statement of where the commander will accept operational (and/or tactical) risk.
- Identification of critical friendly events[22] and phases of the operation (if phased).
- How and where joint forces will be employed.
- Designation of the decisive operation, along with its task and purpose.
- Designation of shaping operations, linked to how they support the decisive operation.
- Designation of reserve, to include location, composition, task, and purpose.
- ISR and protection operations.
- Identification of options that may develop during an operation.
- Assignment of subordinate areas of operations.
- Concept of operational fires.[23]
- Determined IO concept of support and objectives.
- Prescribed formations or dispositions when necessary.
- Priorities for each operational function in support of the operation.
- Considerations of the effects of enemy WMD on the force (as applicable).

[22] These critical events will be used later in Step 3, "Analyze Friendly COAs (War Game)."
[23] Operational Fires--fires applied to achieve a decisive impact on the outcome of a campaign or major operation. They can be lethal or nonlethal. (Vego, Milan ***Operational Warfare***, 2000)

Planners select control measures[24] to control subordinate units during the operation. Planners base control measures on the array of forces and the scheme of maneuver to defeat probable enemy courses of action. Control measures clarify responsibilities and synchronize combat power at decisive points while lessening the risk of fratricide. All control measures impose some constraints on subordinate commanders. Control measures used should be the minimum required to exercise necessary control over the operation while allowing as much freedom of action as possible to subordinates. Planners should also develop phase lines to implement expected branches and sequels.

b. The COA sketch provides a picture of the joint force employment concept of the COA. Together, the statement and sketch cover the "who" (generic task organization), "what" (tasks), "when," "where," "how," and "why" (purpose of the operation) for each subordinate unit/component command; and any significant risks for the force as a whole.

The sketch could include the array of generic forces and control measures, such as:

- Component command boundaries that establish the JOA/AO.
- Unit deployment/employment.
- Control graphics.
- Lines of Operations.
- Intermediate Staging Bases (ISBs), i.e., Bases of Operation (BOOs); LOCs; and Objectives (OBJs).
- Sequencing of events.
- Designation of the decisive (i.e., main effort), and shaping (i.e., supporting effort) operations.
- Enemy known or templated locations.

Planners can enhance the sketch with identifying features such as cities, rivers, and roads to help orient the commander and staff. The sketch may be on any media; what it portrays is more important than its form (see figure 2-1).

At this stage of the process, the staff might propose, or the commander might require, a briefing on the COAs developed and retained. The purpose of this briefing is to gain the commander's approval of the COAs to be further analyzed; to receive guidance on how COAs are to be compared and evaluated; or to receive guidance for revision of briefed COAs or the development of additional COAs. This is another place where a collaborative session may facilitate subordinate planning.

[24] Some examples are identifying Joint Special Operations Area (JSOA), Amphibious Objective Areas, specific Areas of Operations for ground and/or maritime components, Joint Rear Areas, specific fire control measures, etc.

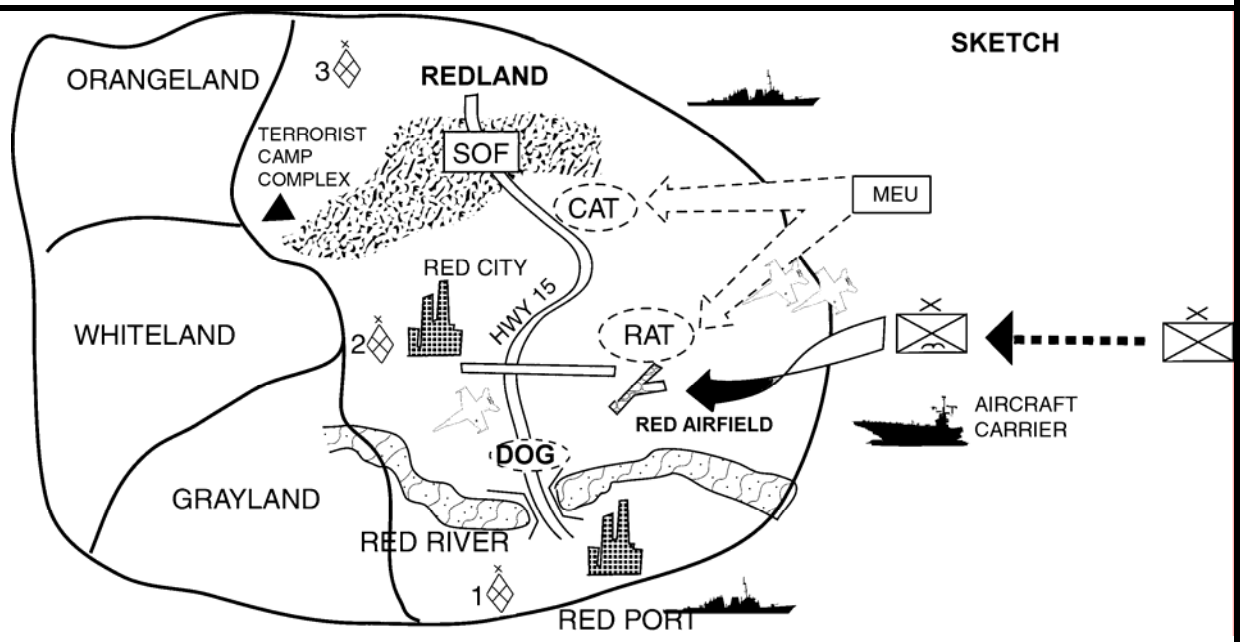
The COA briefing includes:

- Updated JIPB.
- Possible ECOAs.
- The unit mission statement.
- The Commander's Intent and the higher Commander's Intent.
- The COA statements and sketches.
  The rationale for each includes: considerations that might affect ECOAs; deductions resulting from a relative combat power analysis; the reason units are arrayed as shown on the sketch; the reason the staff used the selected control measures; assumed risk; and updated facts and assumptions.

After a decision is made concerning which COAs are to be further analyzed, the commander should provide additional planning guidance to subordinate commands and also request their analysis of the COAs. During Crisis Action Planning, this process may be verbal, via a change to the original WARNING ORDER and/or through the release of a COMMANDER EVALUATION REQUEST message. If he rejects all COAs, the staff begins again. If he accepts one or more of the COAs, staff members begin the wargaming process.

Figure 2-1 is an example of a COA. In this case the detailed shaping operations in the early phases are what would differentiate this COA from other proposed COAs.

Proposed Course of Action __1___: (Airborne Forced Entry)



COA STATEMENT: The Airborne Forced Entry COA is an aggressive offensive operation aimed at destroying the RGB and associated terrorist infrastructure. This COA is conducted in 5 Phases.

Phase 1: The first phase's focus is to shape the conditions for the subsequent decisive operations. During Phase 1, the JFACC will conduct operations to: ensure air superiority in the objective areas, destroy REDLAND Military and Terrorist C2 nodes, neutralize enemy forces in the vicinity of RED CITY AIRFIELD, and OBJ DOG, and delay enemy movement towards the AIRFIELD, in priority, of 2d, 3d, and 1st RED GUARD Bdes (RGB). JSOCC will support with surveillance and targeting upon the 3 RGB. JFMCC will destroy REDLAND maritime capability and support deception operations, which will portray an amphibious assault in the vicinity of RED PORT. Information Operations will support the deception and shape the REDLAND public response to the operation. Phase 1 will end when the JFACC has gained air superiority over the objective areas and the enemy threat at the AIRFIELD and DOG are neutralized. **Phase 2** begins with the main effort, a Brigade-size airborne assault to seize the RED CITY AIRFIELD and establish a blocking position at OBJ DOG. JFACC continues to support objectives of Phase 1, and expands air superiority throughout REDLAND. JSOCC continues to support 3 RGB operations and expands surveillance to suspected terrorist training camps. JFMCC continues to support Phase 1 objectives and positions to support JTF operations if the MEU is committed. IO operations remain unchanged. The MEU is the JTF reserve with priority of employment first to OBJ RAT (blocking position if 3 RGB deploys) and then CAT (if 2 RGB deploys). Phase 2 ends with the AIRFIELD secured. **Phase 3** begins with the deployment of follow-on, air-landed forces, and ends when the second Brigade-size force is in the JOA. **Phase 4** becomes the decisive operation, when the JFLCC, main effort, accepts the MEU, and completes the destruction of the RGBs and remaining terrorists. **Phase 5** is hand-over and redeployment.

Figure 2-1. Example COA Sketch and Statement

Proposed Course of Action _____: ( )
SKETCH:
COA STATEMENT:

Table 2-1. Course of Action Sketch and Statement

STEP 3: ANALYSIS OF FRIENDLY COURSES OF ACTION (WAR GAME)

The heart of the commander's estimate process is the *analysis of opposing courses of action*. Analysis is nothing more than wargaming--either manual or computer assisted. In the previous steps of the estimate, ECOAs and COAs were examined relative to their basic concepts--ECOAs were developed based on enemy capabilities, objectives, and our estimate of the enemy's intent and COAs developed based on friendly mission and capabilities. In this step we conduct an analysis of the probable effect ***each ECOA has on the chances of success of each COA***. The aim is to develop a sound basis for determining the *feasibility* and *acceptability* of the COAs. Analysis also provides the planning staff with a greatly improved understanding of their COAs and the relationship between them.

The COA analysis identifies which COA best accomplishes the mission while best positioning the force for future operations. It helps the commander and staff to:

- **Determine how to maximize combat power against the enemy while protecting the friendly forces and minimizing collateral damage.**
- **Have as near an identical visualization of the combat action as possible.**
- **Anticipate battlespace events and potential reaction options.**
- **Determine conditions and resources required for success.**
- **Determine when and where to apply the force's capabilities.**
- **Focus intelligence collection requirements.**
- **Determine the most flexible COA.**

COA analysis is conducted using wargaming. The war game is a disciplined process, with rules and steps that attempts to visualize the flow of the operation. The process considers friendly dispositions, strengths, and weaknesses; enemy assets and probable COAs; and characteristics of the physical environment. It relies heavily on joint doctrinal foundation, tactical judgment, and operational experience. It focuses the staff's attention on each phase of the operation in a logical sequence. It is an iterative process of action, reaction, and counteraction. Wargaming stimulates ideas and provides insights that might not otherwise be discovered. It highlights critical tasks and provides familiarity with operational possibilities otherwise difficult to achieve. Wargaming is a critical portion of the CES and should be allocated more time than any other step**. Each retained COA should, at a minimum, be war gamed against both the most likely and most dangerous ECOAs.**

During the war game, the staff takes a COA statement and begins to add more detail to the concept, while determining the strengths or weaknesses of each COA. Wargaming tests a COA or improves upon a developed COA. The commander and his staff (and subordinate commanders and staffs if the war game is conducted collaboratively) may change an existing COA or develop a new COA after identifying unforeseen critical events, tasks, requirements, or problems.

Planners need to follow these general rules during the conduct of the war game:

- Remain objective, not allowing personality or their sensing of "what the commander wants" to influence them. They must avoid defending a COA just because they personally developed it.
- Accurately record advantages and disadvantages of each COA as they become evident.

- Continually assess suitability, feasibility, and acceptability of the COA. If a COA fails any of these tests during the war game, they must reject it.
- Avoid drawing premature conclusions and gathering facts to support such conclusions.
- Avoid comparing one COA with another during the war game. This must wait until STEP 4 (Comparison of Friendly COAs).

The OPG/JPG chief, is normally responsible for coordinating actions of the staff during the war game.[25] The OPG/JPG chief is the unbiased controller of the process, ensuring the staff stays on a timeline and accomplishes the goals of the wargaming session. In a time-constrained environment, the OPG/JPG chief ensures that, at a minimum, the decisive action is war gamed.

The J3 (for short-term planning) or J5 (for long-term planning) normally selects the techniques and methods that the staff will use for wargaming. The J3 role-plays the friendly commander during the war game. The J3 staff must ensure that the war game of the COA covers every operational aspect of the mission, records each event's strengths and weaknesses, and annotates the rationale. When staff members are available, the J3 should assign different responsibilities within the J3 section for wargaming. The rationale for actions during the war game are annotated and used later to compare COAs in addition to the Commander's Guidance.

The J1 analyzes COAs to project potential personnel battle losses and determine how Combat Service Support (CSS) provides personnel support during operations.

The J2 role-plays the enemy commander (unless a Red Cell is used for that role). He develops critical enemy decision points in relation to the friendly COA, projects enemy reactions to friendly actions, and projects enemy losses. When staff members are available, the J2 should assign different responsibilities to individual staff members within the section for wargaming—such as enemy commander, friendly J2, and enemy recorder. The J2 must capture the results of each enemy action and counteraction and the corresponding friendly enemy strengths and vulnerabilities. By trying to win the war game for the enemy, he ensures that the staff fully addresses friendly responses for each enemy COA. For the friendly force, he identifies information requirements and refines the event template to include Named Areas of Interest (NAIs) that support decision points and refines the event matrix with corresponding decision points, Target Areas of Interest (TAIs), and high-value targets; refines situation templates; and participates in the targeting meetings and determines High-Payoff Targets (HPTs)[26] based on JIPB.

The J4 analyzes each COA to assess its transportation and sustainment feasibility. He estimates how long it will take for assets to arrive in theater and he determines critical requirements for each sustainment function by analyzing each COA to identify potential problems and deficiencies. He assesses the status of all sustainment functions required to support the COA and compares this to available assets.

[25] This role is sometimes filled by the J5, J3, or Chief of Staff depending on a variety of factors--not the least of which is time available. Whoever fills this role should have a clear understanding of the Commander's Intent.

[26] High Payoff Targets are those targets whose loss to the enemy will significantly contribute to the success of the friendly course of action. HPTs are those high value targets (Step 1 JIPB) identified through wargaming that must be acquired and successfully attacked for the success of the friendly commander's mission. (JP 2-01.3)

He identifies potential shortfalls and recommends actions to eliminate or reduce their effect for that COA. While improvising can contribute to responsiveness, only accurate prediction or requirements for each sustainment function can ensure the continuous sustainment of the force. In addition, the J4 ensures that available movement times and assets will support the COA.

The Civil-Military Operations (CMO) staff analyzes each COA for effectively integrating civil considerations into the operation. The CMO staff focuses on the operational areas, but like the J1 and J4, they must also focus on the combat support and combat service support issues, particularly those regarding foreign nation support and the care of displaced civilians. The staff's analysis of each COA considers the impact of operations on public order and safety, potential for disaster relief requirements, Noncombatant Evacuation Operations (NEO), emergency services, and protection of culturally significant sites. If the unit does not have an assigned CMO staff, these responsibilities should be assigned to another staff section.

Special staff officers help the coordinating staff by analyzing the COAs in their own areas of expertise (legal, public affairs, etc.), indicating how they could best support the mission. Every staff member must determine the force requirements for external support, the risks, and each COA's strengths and weaknesses. This can be greatly facilitated and refined when wargaming is done collaboratively. In addition, when conducted collaboratively, wargaming allows subordinate units to immediately see refinements to the concept of the operation that emerge with the war game process; thus the units tailor their own concepts accordingly and speed up the process.

The staff follows eight steps during the wargaming process:

- Gather the tools.
- List all friendly forces.
- List assumptions.
- List known critical events.
- Determine Governing Factors.
- Select the war game method.
- Record and display results.
- War game the operation and assess the results.

1. Organize for the War game: Gather the necessary tools, materials, and data for the war game. Units need to war game on maps, sand tables, computer simulations and other tools that accurately reflect the nature of the terrain. The staff then posts the COA on a map displaying the JOA/AO and other significant control measures. Tools required include, but are not limited to:

- Display Critical Mission Analysis Information: Higher and own—Mission, Commander's Intent, Assumptions and CCIRs.
- Event template.
- Recording method.
- Completed COAs, to include maneuver and ISR.
- Means to post enemy and friendly unit symbols.

- Chart or Map of AO/JOA (either paper or digital).
- Updated estimates and Common Operating Picture.

2. List all Friendly Forces: The commander and staff consider all units that can be committed to the operation, paying special attention to support relationships and limitations. The friendly force list remains constant for all COAs that the staff analyzes.

NOTE: Friendly Force information should have been recorded during STEP 1—Mission Analysis.

Friendly Forces			
Ground	**Maritime**	**Air**	**SOF**

3. Review Assumptions. The commander and staff review assumptions (**as developed in STEP 1**) for continued validity and necessity.

4. List Known Critical Events: These are essential tasks, or a series of critical tasks, conducted over a period of time that require detailed analysis (e.g., the series of component tasks to be performed on D-Day). This may be expanded to review component tasks over a phase(s) of an operation (e.g., lodgment phase) or over a period of time (C-Day through D-Day). The planning staff may wish at this point to also identify Decision Points (those decisions in time and space that the commander must make to ensure timely execution and synchronization of resources). These decision points are most likely linked to a critical event (e.g., commitment of the JTF Reserve force).

Critical Events:

- Forced entry ops, seizure of Red Airbase
- JTF deception operation
- Achievement of air superiority
- Achievement of maritime superiority

Example List of Critical Events

Critical Events:

5. Determine the Governing Factors:[27] Governing Factors are those criteria the staff uses to measure the effectiveness and efficiency of one COA relative to other COAs following the war game. They are those aspects of the situation (or externally imposed factors) that the commander deems *critical* to the accomplishment of his mission. Potential influencing factors include elements of the Commander's Guidance and/or Commander's Intent, selected principles of war, external constraints, and even anticipated future operations for involved forces or against the same objective. Governing Factors change from mission to mission. Though these factors will be applied in the next step when the COAs are compared, it will be helpful during this wargaming step for all participants to be familiar with the factors so that any insights into a given COA which influence a factor are recorded for later comparison. The criteria may include anything the commander desires. If not received directly from the commander, they are often derived from his intent statement. See Appendix F for a list of possible Governing Factors. Examples include:

- The Commander's Guidance and Commander's Intent.
- Mission accomplishment at an acceptable cost.
- The principles of war/MOOTW (MOOSEMUSS/SLURPO).
- Doctrinal fundamentals for the type of operation(s) being conducting.
- The level of residual risk in the COA.

The factors should look at both what will create success and what will cause failure. They may be used to determine the criteria of success for comparing the COAs in STEP 4.

6. Select the Wargaming Method: There are a variety of wargaming methods that can be used, with the most sophisticated being computer-aided modeling. Time and resources available to support the wargaming will undoubtedly influence the method selected. However, wargaming can be as simple as using a detailed narrative in conjunction with a map or situation sketch. Each critical event within a proposed COA should be war gamed based upon time available using the action, reaction, counteraction method of friendly and/enemy interaction.

7. Record and Display Results: Recording the war game's results gives the staff a record from which to build task organizations, synchronize activity, develop decision support templates, confirm and refine event templates, prepare plans or orders, and analyze COAs based on identified strengths and weaknesses. The **War game Worksheet** (Table 3-1) can be used by staff members to record any remarks regarding the strengths and weaknesses they discover (see Figure 3-1 as an example). The amount of detail depends on the time available. Details and methods of recording and displaying war game results are best addressed in unit Standard Operating Procedures.

The War game Worksheet allows the staff to synchronize the COA across time and space in relation to the enemy COA. The War game Worksheet uses a simple format that allows the staff to game each critical event using an action/reaction/counter-action method, with an ability to record the timing of the event, force/assets requirements and remarks/observations.

[27] The JPG/OPG may include the suggested Governing Factors in their Mission Analysis brief at the end of Step 1 in order to receive the Commander's Guidance/modification.

8. War game the Combat Action and Assess the Results: During the war game, the commander and staff try to foresee the dynamics of an operation's action, reaction, and counteraction. The staff normally analyzes each selected event by identifying the tasks the force must accomplish two echelons below. Identifying the COAs' strengths and weaknesses allows the staff to make adjustments as necessary.

Each game turn usually consists of three moves— two by the friendly force, one by the enemy force. The friendly force has two moves because the activity is intended to validate and refine the friendly force's COA, not the enemy's. If necessary, additional moves may be required to achieve desired effects.

- **Friendly Actions.** The war game begins with the first friendly action. The war game then proceeds as each warfighting function representative gives the details of the friendly COA. Representatives explain how they would predict, preclude, and counter the enemy's action.

- **Enemy Reactions.**[28] Normally the J2 (or a selected RED Cell) will speak for the enemy and respond to friendly actions. He will use an enemy synchronization matrix and event template to describe the enemy's activities. The event template will be updated as new intelligence is received and as a result of the war game. These products will depict the locations of NAIs and when to collect information that will confirm or deny the adoption of a particular COA by the enemy and will serve as a guide for collection planning. The J2 will describe enemy actions by warfighting function. He should present the enemy's concept of operations, and concept of reconnaissance and surveillance. What intelligence collection assets do the enemy have? How and when will he employ them? Also, the J2 should describe how the enemy would organize its battlespace. He should identify the location, composition, and expected strength of the enemy reserve, as well as the anticipated decision point and criteria that the enemy commander might use in committing his reserve. Other enemy decision points that he might identify include likely times, conditions, and areas for the enemy use of weapons of mass destruction and friendly NBC defense requirements, when the enemy could begin a withdrawal, where and when the enemy will use unconventional forces, etc. Based on the experience level of the J2, he might also offer insight on the likely effectiveness of friendly actions. The friendly commander will want to know what decisions the enemy commander will have to make and when those decisions will be made--"Are they event driven?" When a deception plan is being war gamed, the J2 should outline target biases and predispositions, how and when the enemy would receive the desired misleading indicators and enemy actions that will indicate the deception has been successful.

- **Counteractions**. After the enemy reaction is executed, friendly forces will provide a counteraction and the various warfighting functions' activities will be discussed and recorded before advancing to the next series of events. If necessary, the war game facilitator authorizes more "moves" by both sides in order to achieve the desired fidelity.

[28] At a minimum, the staff should war game all friendly COAs against both the enemy's most likely and most dangerous ECOAs. If time permits, all ECOAs should be war gamed against all friendly COAs.

The staff considers all possible forces including templated enemy forces outside the AO/JOA/AOR that could react to influence the operation. The staff evaluates each friendly move to determine the assets and actions required to defeat the enemy at each turn. The staff should continually evaluate the need for branches to the plan that promote success against likely enemy moves in response to the friendly COA. The staff lists assets used in the appropriate columns of the worksheet and lists the totals in the assets column (not considering any assets lower than two command levels down).

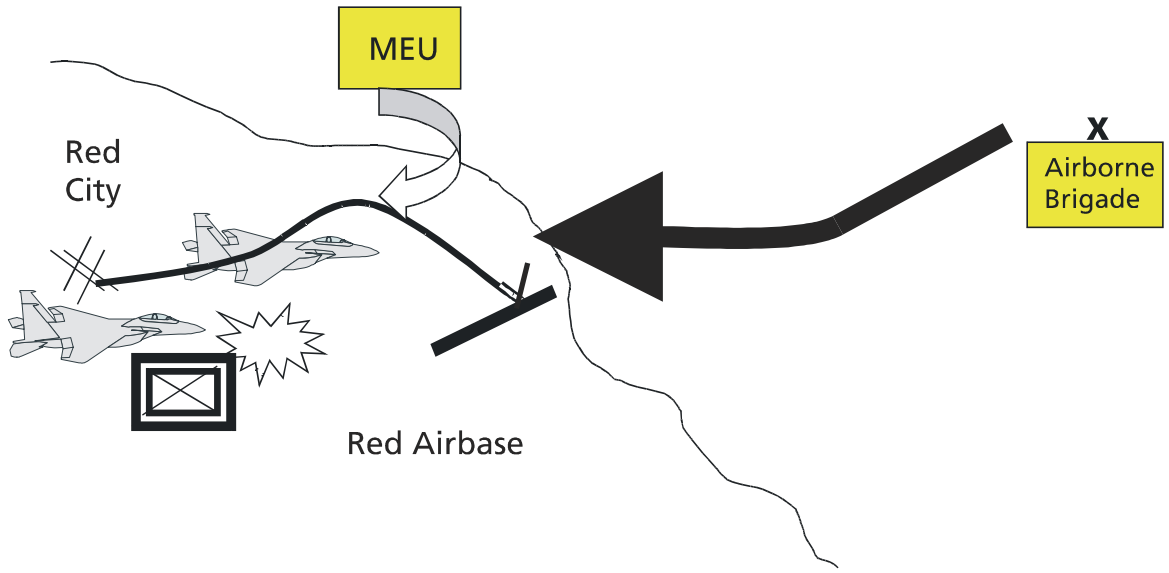
The commander and staff look at many areas in detail during the war game, including all enemy capabilities, deployment considerations and timelines, ranges and capabilities of weapon systems, and desired effects of fires. They look at setting the conditions for success, protecting the force, and shaping the battlespace. Experience, historical data, SOPs, and doctrinal literature provide much of the necessary information. During the war game, staff officers conduct a risk assessment in their area of expertise and responsibility for each COA.

The staff continually assesses the risk to friendly forces from catastrophic threats, seeking a balance between mass and dispersion. When assessing WMD risk to friendly forces, the planners view the target that the force presents through the eyes of an enemy target analyst. They must consider ways to reduce vulnerability and determine the mission-oriented protective posture (MOPP) level needed for protection consistent with mission accomplishment. They must also consider deployment of nuclear, biological, and chemical (NBC) decontamination assets.

The staff identifies the operational functions required to support the scheme of maneuver and the synchronization of the sustaining operation. If requirements exceed available assets, the staff recommends the priority for use to the commander based on his guidance and intent, and on the situation. To maintain flexibility, the commander may decide to withhold some assets for unforeseen tasks or opportunities. He uses this analysis to determine his priorities of support.

During the war game, the commander can modify the COA based on how the operation develops. When modifying the COA, the commander should validate the composition and location of decisive and shaping operations and reserve forces, based on the **M**ission, **E**nemy, **T**errain (Battlespace) effects, **T**roops and Equipment Available, **T**ime available, and **C**ivil Considerations (METT-TC) factors, and adjust control measures as necessary. The commander may also identify combat situations or opportunities or additional critical events that require more analysis. This should be conducted expeditiously and incorporated into the final results of the war game.

SKETCH



Friendly COA | **Enemy ECOA** | **Friendly Response**

COA# 1	Critical Event: Seize Red Airbase					
Sequence Number	Action	Reaction	Counter Action	Time	Forces/ Assets	Remarks
1	Abn Bde conducts forced entry onto airfield	Garrison from Red City launches counter attack against Abn force at the Airfield	MEU establishes Blocking Psn on Main Road; Air Interdicts Red force	H+1	-Abn Bde -MEU AI	Requires early commitment of afloat reserve (MEU); PSYOP Focus
2						

Figure 3-1. Example War Game Worksheet

Sketch:

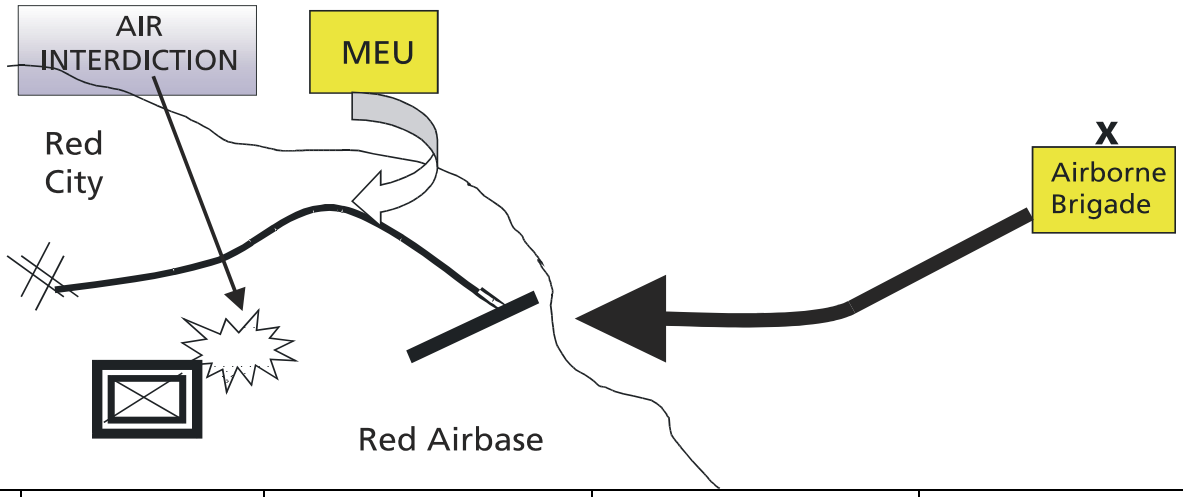
COA #	**Critical Event:**					
Sequence Number	**Action**	**Reaction**	**Counter Action**	**Time**	**Forces/ Assets**	**Remarks**
1						
2						
3						

Table 3-1. Sample War Game Worksheet

If more time is available, the staff should use the more detailed **War Game Synchronization Matrix** (Table 3-2). This recording tool allows the staff to better focus the analysis within specific components and operational functions, as well as other planning considerations (see Figure 3-2 as an example). Though its takes longer to complete, this tool will prove more helpful when the staff begins developing the detailed concept of operations upon the completion of the CES process (see JP 5-00.2).

Friendly COA #1 Short Name: **Forced Entry**
Enemy COA-Most Likely/~~Most Dangerous~~
~~Time/Phase/~~ Critical Event: **Seize Airfield**

Figure 3-2 Wargame Synchronization Matrix



	COMPONENTS/ FUNCTIONS	ACTION	REACTION	COUNTERACTION
COMPONENTS	JFLCC	Abn Bde conducts airborne forced entry on Red Airfield	Garrison from Red City launches Counter-attack against Abn force at afld	Completes Airfield seizure; establishes hasty defense
	MARFOR	MEU positioned afloat — JTF Reserve		MEU establishes blocking psn on Red City MSR
	JFMCC	CVGB provides air cap over objective area		AI focus on delay of Red Garrison Force
	JFACC	Coord forced entry air ops and CAS		Coord CAS and AI ops
	JSOCC	SR forces in psn at airfield and Red MSR NLT H-4		Report status of Garrison Force counter attack
	JPOTF	PSYOP Theme per OPORD- spt forced entry		PSYOP teams with MEU, focus on Garrison force
OPERATIONAL FUNCTIONS	INTELLIGENCE	NAIs 1 &2		Status of Garrison Force
	FIRES	CVGB provides air support		CAS / AI support continues
	LOGISTICS	Abn Force has 3 DOS		MEU has 15 DOS
	COMMAND & CONTROL	JTF HQ afloat		O/O MEU is passed TACON to the Abn force.
	PROTECTION	Deception theme: no impending U.S. ops		
OTHERS	DECISION POINTS		Commitment of MEU (JTF Reserve)	
	CCIR	Enemy Disposition at the airfield		Movement of the Garrison Force
	BRANCHES			Early Commitment of MEU; Joint Force Coord Required
	REMARKS			Add additional PSYOPS Tm to MEU. Change to CCIR AI against Garrison Force

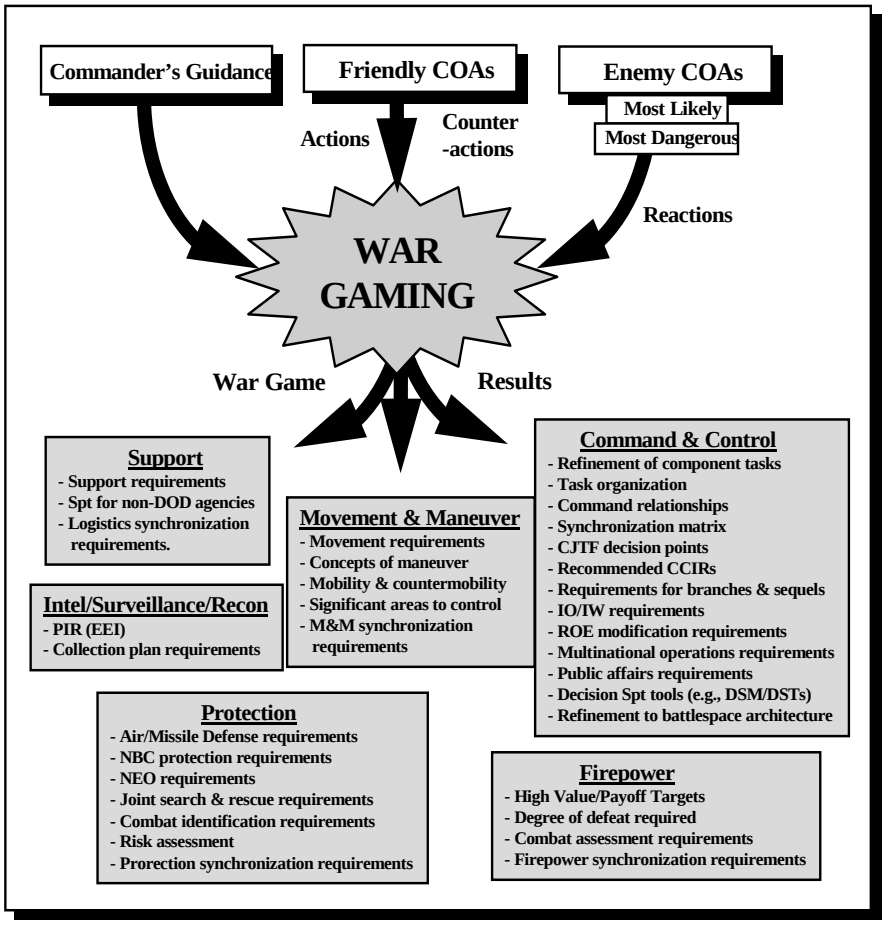
Figure 3-2. Example War Game Synchronization Matrix

Friendly COA # _____ Short Name: _____
Enemy COA- (Most Likely / Most Dangerous)
Time / Phase / Critical Event: _____

	COMPONENTS/ FUNCTIONS	ACTION	REACTION	COUNTERACTION
COMPONENTS	ARFOR/JFLCC			
	MARFOR			
	NAVFOR/JFMCC			
	AFFOR/JFACC			
	JSOCC			
	JPOTF			
OPERATIONAL FUNCTIONS	INTELLIGENCE			
	FIRES			
	LOGISTICS			
	COMMAND & CONTROL			
	PROTECTION			
	MOVEMENT & MANEUVER			
OTHERS	DECISION POINTS			
	CCIR			
	BRANCHES			
	REMARKS			

Table 3-2. Sample War Game Synchronization Matrix

Figure 3-3. Wargaming Summary



An effective war game **may** also produce some of the following results:[29]

- Refining or modifying the COA, to include identifying branches and sequels that become on-order or be-prepared missions.
- Insights into the COAs that will support the next CES step, which will be to compare the COAs.
- Identifying key or decisive terrain and determining how to use it.
- Refining the enemy event template and matrix.
- Refining task organization, to include forces retained in general support of the command.
- Identifying tasks the unit must retain and tasks to be assigned to component commands.
- Allocating operational function assets to component commands to accomplish their missions.
- Developing, identifying or confirming the locations of decision points as well as the NAIs, TAIs, and IR needed to support the decision points.

[29] As mentioned at the beginning of this step, the purpose of the war game is to provide insights into each COA in order to support the eventual commander's COA decision. Though this appears to be a lengthy list, if the war game is properly resourced with both knowledgeable participants and adequate time, the war game will also provide the commander and the staff with substantial preliminary information that will be required for the later CONOPS development.

- Developing a synchronization matrix;
- Developing a decision support template.
- Developing IO objectives and tasks.
- Estimating the duration of each critical event as well as of the entire operation.
- Projecting the percentage of total enemy forces defeated in each critical event as well as overall.
- Identifying likely times and areas for enemy use of WMD and friendly NBC defense requirements.
- Identifying the location and commitment of the reserve.
- Identifying / Confirming the most dangerous enemy COA.
- Identifying the location of the commander, unit command posts, and IO nodes.
- Identifying additional critical events.
- Identifying additional requirements for operational function support with supporting plans and graphics.
- Determining requirements for deception and surprise.
- Refining C2 requirements, to include control measures and updated operational graphics.
- Refining CCIR and IR, to include the last time information is of value, and incorporating them into the ISR plan.
- Developing the intelligence collection and dissemination plan and the resulting ISR plan and graphics.
- Determining the timing of force concentration and initiation of the attack or counterattack.
- Determining deployment times for critical assets.
- Identifying, analyzing, and evaluating strengths and weaknesses of the COA.
- Integrating the targeting process, to include identifying or confirming HPTs and determining attack guidance.
- Identifying additional hazards, assessing their risk, developing control measures to reduce risk from all identified hazards, and determining residual risk.

STEP 4: COMPARISON OF FRIENDLY COURSES OF ACTION AND THE DECISION

The fourth step in the CES is a comparison of the remaining COAs. The commander and staff develop and evaluate a list of important governing factors, consider each COA's advantages and disadvantages, identify actions to overcome disadvantages, make final tests for feasibility and acceptability and weigh the relative merits of each. This step ends with the commander selecting a specific COA for further CONOPS development.

The COA comparison starts with each staff officer analyzing and evaluating the advantages and disadvantages of each COA from his perspective. Each staff member presents his findings for the others' consideration. Using the governing factors developed as evaluation criteria earlier, the staff then outlines each COA, highlighting its advantages and disadvantages. Comparing the strengths and weaknesses of the COAs identifies their advantages and disadvantages with respect to each other.

The actual comparison of COAs is critical. The staff may use any technique that facilitates the staff reaching the best recommendation and the commander making the best decision. The most common technique is the decision matrix, which uses evaluation criteria (governing factors) to assess the effectiveness and efficiency of each COA (see Table 4-1). Each staff officer may use his own matrix, using the same evaluative criteria, for comparison in his own field of interest. Decision matrices alone cannot provide decision solutions. Their greatest value is to provide analysts a criteria to compare several competing COAs against criteria, which, when met, will produce success. The matrix should use the evaluation criteria developed earlier.

1. Governing Factors.

The comparison of COAs begins with governing factors—these factors were selected during STEP 3. For selected examples of governing factors see Appendix F.

The techniques for conducting the comparison vary, but all of them must assist the commander in reaching a sound decision. Normally, a "decision matrix" (Table 4-1) is used to facilitate this process. This matrix numerically portrays ***subjectively*** chosen and ***subjectively*** weighted governing factors. Each staff member may use his own matrix or recommend his own choice of governing factors based on his respective functional area.

The commander reviews this list and deletes or adds to it as he sees fit. The list need not be a lengthy one—there should be few factors, though enough to differentiate COAs.

Some general comments for creating the decision matrix:

- Having determined the governing factors, ensure each is ***defined*** so its meaning is understood by all. (For example, if MASS is selected as a factor, is MASS good—as in massing effects, or is it bad, as in complicating operational protection.)
- Determine how you will measure the advantages or disadvantages of a governing factor. (For example, again using achievement of MASS—as in massing effects as a governing factor, then what do you assess as a strength? Does the ability to achieve greater than a

6:1 ratio of ground forces at the point of decision, coupled with local air superiority define strength, while anything less is weakness?)
- Prioritize the governing factors by overall importance. (This assists in determining if weights should be assigned.)
- Determine the range of values, which may be assigned. The higher number in the range indicates the better value. Keep the numbers manageable in order to be meaningful.

As demonstrated in the completed decision matrix of Appendix G, the governing factors may be evaluated on their individual merits (all weights equal) or each factor may be weighted for importance.

- When assigning weights, you should ask the question "is this factor *really* two (or three) times more important than that factor?"
- The weights are multiplied by the initially assigned score in each column; the results are then totaled.

The Chief of the OPG/JPG, sometimes the Chief of Staff (COS) normally determines the weight of each criterion based on its relative importance. The commander may also designate importance of some criteria that result in weighting those criteria. The staff officer responsible for a functional area scores each COA using those criteria. Multiplying the score by the weight yields the criterion's value. The staff officer then totals all values. However, he must be cautious in portraying subjective conclusions as being the objective results of quantifiable analysis. Comparing COAs by category is more accurate than attempting to aggregate a total score for each COA.

The result obtained is not meant to be absolute or objective in nature. However, if the same criteria are ruthlessly applied to all COAs, the relative ranking and the merits (or faults) of each should be readily apparent. Each situation is different and requires a different set and number of governing factors to be established. See Appendix G for an example of a completed matrix.

2. List Advantages and Disadvantages of Each COA.

This is perhaps the most valuable part of the comparison as it is here that the tradeoffs between the COAs should be most apparent. The advantages and disadvantages of any particular COA could be quite lengthy and detailed. Many advantages and disadvantages should be carried forward from the conception and analysis steps. Table 4-2 provides a format.

The staff compares feasible COAs to identify the one that has the highest probability of success against the most likely enemy COA and the most dangerous enemy COA. The selected COA should also:

- Offer the greatest opportunity for mission accomplishment.
- Best position the force for future operations.
- Provide the best flexibility to meet unexpected threats and opportunities.
- Provide maximum latitude for the initiative by subordinates.
- Address the associated risk.

GOVERNING FACTORS	WT	COA #1		COA #2		COA #3		COA # 4	
TOTAL									
WEIGHTED TOTAL									

Table 4-1. Sample Decision Matrix
(See Appendix G for a Sample Completed Matrix)

COA	ADVANTAGES	DISADVANTAGES	MODIFICATIONS

Table 4-2. Comparison of Advantages / Disadvantages with Modifications

3. Compare the Merits of COAs.

The staff compares the various remaining COAs in order to determine which one best satisfies the requirements of the mission. The staff should seek to answer the question, "Is this the utmost we can do to carry out the mission?" This question requires a resounding "yes!" The remaining COAs should not be discarded — they may be retained as possible branches, alternate plans or deception plans.

However, during the final decision, the commander may find none of the COAs analyzed to be valid. Consequently, new COAs would need to be developed. They must also be tested for suitability and then analyzed against each ECOA in order to predict the outcomes of the new COAs against each ECOA. If, after all analysis and comparison, no COAs are found suitable, feasible, and acceptable, the commander should present the examined options along with supporting facts to his higher commander. The commander should point out what could be accomplished under the circumstances and estimate what additional forces would be required to accomplish the original mission. It is then the responsibility of the superior commander to either order that a selected COA be carried out despite the consequences or change the original mission statement.

4. COA Decision.

After completing its analysis and comparison, the staff identifies its preferred COA and makes a recommendation. The staff then briefs the commander. The Chief of the OPG/JPG highlights any changes to the COAs as a result of the wargaming process. Component commanders may be present, but are not required, for the decision brief; their participation, either in person or via VTC, enhances the planning process. The **decision-briefing format** includes:

- The intent of the higher headquarters (two levels up).
- The mission.
- The status of friendly forces.
- An updated JIPB.
- COAs, including the assumptions used in planning, results of staff estimates, and advantages and disadvantages (including risk) of each COA (with decision matrix or table showing COA comparison).

After the decision briefing, the commander selects the COA, which most effectively accomplishes the mission. The commander will rely heavily on the staff for their professional judgment and experience; however, it is ultimately the commander’s decision to make. Once the commander has selected a COA, written his intent statement, and identified his CCIRs, the selected COA may need refinement. It is this COA that the staff will continue to refine, analyze and synchronize to produce the concept of operations. The commander then issues any additional guidance on priorities for operational functions (particularly for resources he needs to preserve his freedom of action and to ensure continuous service support), orders preparation, rehearsal, and preparation for mission execution.

Having already identified the risks associated with the selected COA, the commander decides what level of residual risk he will accept to accomplish the mission and approves control measures that will reduce the risks. If there is time, he discusses the acceptable risks with adjacent, subordinate, and senior commanders. However, the higher commander's approval to accept any risk that might imperil the higher commander's intent must be obtained. Based on the commander's decision, the staff immediately issues a Warning Order with essential information so subordinate commands can refine their plans. This Warning Order confirms guidance issued by the commander and expands on details not covered by the commander personally.

5. Joint Synchronization Matrix.

Based on the commander's decision and final guidance, the CES process is completed, and the staff now refines the COA and completes the plan and prepares to issue the order. The staff prepares the order or plan to implement the selected COA by turning it into a clear, concise concept of operations. The staff development of the order/plan is often aided by completing a **joint synchronization matrix**. This internal staff planning tool is used in much the same manner as the wargaming synchronization matrix (see Appendix H for more information and a recommended format). The commander can use the COA statement as his concept of operations

statement. The COA sketch can become the basis for the operation overlay. The staff assists subordinate staffs with their planning and coordination as needed.

6. Concept of Operations.

Using the joint synchronization matrix, the staff builds the concept of operations. This is the commander's clear, concise statement of where, when, and how he intends to concentrate combat power to accomplish the mission according to his higher Commander's Intent. It broadly outlines considerations necessary for developing a scheme of maneuver. It includes designation of the decisive operation and key shaping operations, the commander's plan to defeat the enemy, and specific command and support relationships. These relationships are then included in the task organization and organization for combat in plans and orders. It can also include:

- Physical Objective(s)
- Commander’s Intent
- Scheme of Maneuver
- Sector of Main Effort
- Sector of Supporting Effort
- Phasing
- Deception
- Employment of force elements (ground, naval, air, special forces, space, etc.)
- Fires (type, purpose, priorities)
- Allocation of sustainment assets
- NBC (offensive and/or defensive)
- Reserves (designation, purpose, location, and anticipated employment)

From this expanded concept of operations, the staff is ready to move to the next step, Development of Plans/Orders.

STEP 5: DEVELOPMENT OF PLANS/ORDERS

In this step, the staff will use the Commander's Guidance, Commander's Intent, and CONOPS to develop the required plan or order. A plan is prepared in anticipation of operations and it normally serves as the basis of a future order. An order is a written or oral communication that directs actions and focuses a subordinate's tasks and activities towards accomplishing the mission. While various portions of the plan or order have been developed during the planning process, this is the step to put them into the approved military format. Since a plan or an order will normally contain only critical or new information, not routine matters found in SOPs, a well written plan or order should be clear, as concise as possible, and focused on the mission. When developed, the military directive (as it is also known) should be synchronized, understood, and in total support of the higher commander's intent. It should also contain the following characteristics:

1. Characteristics.

- **Clarity.** Each executing commander should be able to understand the directive thoroughly. Wording should be simple, straightforward, using proper military (doctrinal) terminology.
- **Brevity.** The directive should be concise, avoiding extra words and unnecessary details; however, this should not be at the expense of completeness.
- **Authoritativeness.** Write the directive in the active voice and authoritative form of expression whenever possible.
- **Simplicity.** All elements should be as simple as possible in order to reduce misunderstandings.
- **Flexibility.** A good directive allows for adjustments that arise do to unexpected operating conditions.
- **Timeliness.** It is critical to disseminate the directive to allow adequate planning and preparation by subordinate commands. Through the use of Warning Orders as discussed in earlier steps, subordinate units can begin planning prior to receipt of the final order or plan.
- **Completeness.** It must contain all necessary information to coordinate and execute the mission, and it must provide control measures that allow for and maximize the subordinate commander's initiative.
- **Command Organization.** It must establish a clear command structure with clearly delineated responsibilities.

2. Format of Military Plans and Orders.

Plans and orders can come in many varieties from the very detailed Campaign Plans and Operations Plans to simple verbal orders. They also include Functional Plans, Operation Orders, Warning Orders, Planning Orders, Alert Orders, Execute Orders, and Fragmentary Orders. The more complex directives will contain much of the amplifying information in appropriate annexes and appendices. However, the directive should always contain the essential information in the main body. The form may depend on the time available, the complexity of the operation, and the levels of command involved. However, in most cases, the directive will be standardized in the

five-paragraph format that was introduced back in step one. Following is a brief description of each of these paragraphs.

- **Paragraph 1 – Situation.** The commander's summary of the general situation that ensures subordinates understand the background of the planned operations. Paragraph 1 will often contain sub paragraphs describing the higher Commander's Intent, friendly forces, and enemy forces.
- **Paragraph 2 – Mission.** The commander inserts his restated mission (containing essential tasks) developed during the mission analysis.
- **Paragraph 3 – Execution.** This paragraph contains Commander's Intent, which will enable commanders two levels down to exercise initiative while keeping their actions aligned with the overall purpose of the mission. It also specifies objectives, tasks, and assignments for subordinates.
- **Paragraph 4 – Administration and Logistics.** This paragraph describes the concept of support, logistics, personnel, public affairs, civil affairs, and medical services.
- **Paragraph 5 – Command and Control.** This paragraph specifies the command relationships, succession of command, and overall plan for communications.

3. Commander Approval of the Plan/Order.

The commander reviews and approves orders before the staff reproduces and briefs them unless he has delegated that authority to his COS or J3/5. Once the plan or order is released, the command must ensure the plan or order is clearly understood by both the staff elements and subordinate commands that will be responsible for its execution. The measures taken to assure this clear understanding of the plan or order are contained in the final step, **Transition**.

See the following publications for assistance with specific formats:

NWP 5-01, Naval Operational Planning.
MCWP 5-1, Marine Corps Planning Process.
JOPES Volume I, Planning Policies and Procedures.
JOPES Volume II, Planning Formats and Guidance.

STEP 6: TRANSITION[30]

Transition is critical to the overall planning process. It is an on-going, concurrent process that is especially important at the operational level where typically there are separate staff sections responsible for planning and execution.

Transition is an orderly turnover of a plan or order as it is passed to those tasked with the execution of the operation. It provides information, direction and guidance relative to the plan or order that will help to facilitate situational awareness. Additionally, it provides an understanding of the rationale for key decisions necessary to ensure there is a coherent shift from planning to execution. These factors coupled together are intended to maintain the intent of the concept of operations, promote unity of effort, and generate tempo.

Successful transition ensures that those charged with executing the order have a full understanding of the plan. Regardless of the level of command, such a transition ensures that those who execute the order understand the commander's intent and the concept of operations. Transition may be internal or external in the form of briefs or drills. Internally, transition occurs between future plans or future and current operations. Externally, transition occurs between the commander and his subordinate commands.

1. Transition Brief

At the higher levels of command, transition may include a formal transition brief to subordinate or adjacent commanders and to the staff supervising execution of the order. At lower levels, it might be less formal. The transition brief provides an overview of the mission, Commander's Intent, task organization, and enemy and friendly situation. It is given to ensure that all actions necessary to implement the order are known and understood by those executing the order. The commander, deputy commander, chief of staff, or organizational SOP provides transition brief guidance, which may prescribe who will give the brief, the briefing content, the briefing sequence, and who is required to attend. Time available dictates the level of detail possible in the transition brief. Orders and supporting materials should be transmitted as early as possible before the transition brief. The brief may include items from the order or plan such as:

- Higher headquarters mission (tasks and intent).
- Mission.
- Commander's Intent.
- CCIRs.
- Task organization.
- Situation (friendly and enemy).
- Concept of operations.
- Execution (including branches and potential sequels).
- Planning support tools (such as synchronization matrix, JIPB products, etc.).

[30] This chapter draws heavily from MCWP 5-1.

2. Confirmation Brief

A confirmation brief is given by a subordinate commander after he receives his order or plan. Subordinate commanders brief the higher commander on their understanding of commander's intent, their specific task and purpose, and the relationship between their unit's missions and the other units in the operation. The confirmation brief allows the higher commander to identify gaps in his plan, identify discrepancies between his and subordinate commander's plans, and learn how subordinate commanders intend to accomplish their mission.

3. Transition Drills.

Transition drills increase the situational awareness of the subordinate commanders and the staff and instill confidence and familiarity with the plan. Sand tables, map exercises, and rehearsals are examples of transition drills. A common term used to describe transition drills is a "rock drill." See Appendix I for a detailed discussion on rehearsals.

APPENDIX A: JIPB Products

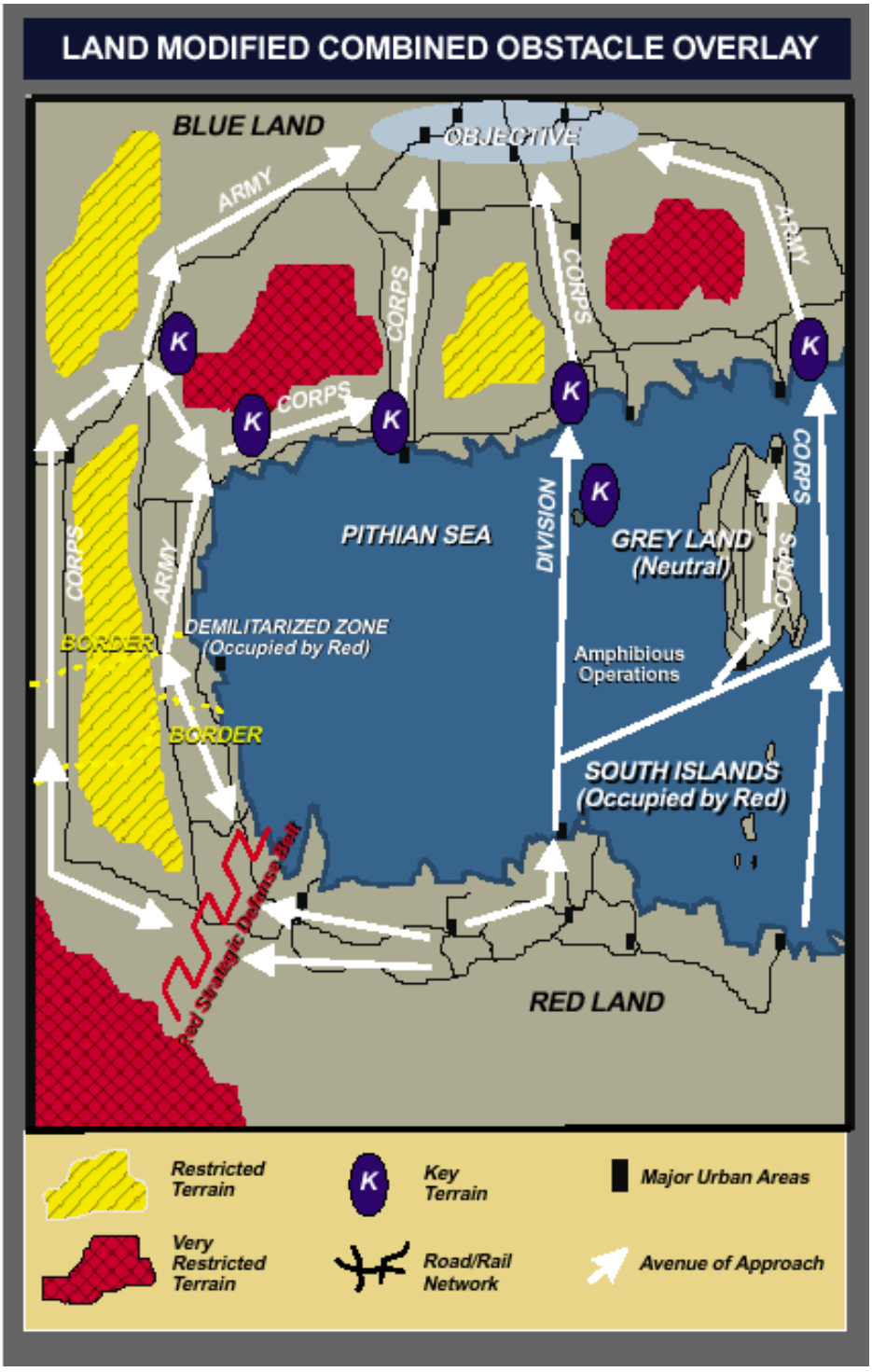


Figure A-1. Example of a Land MCOO (JP 2-01.3)

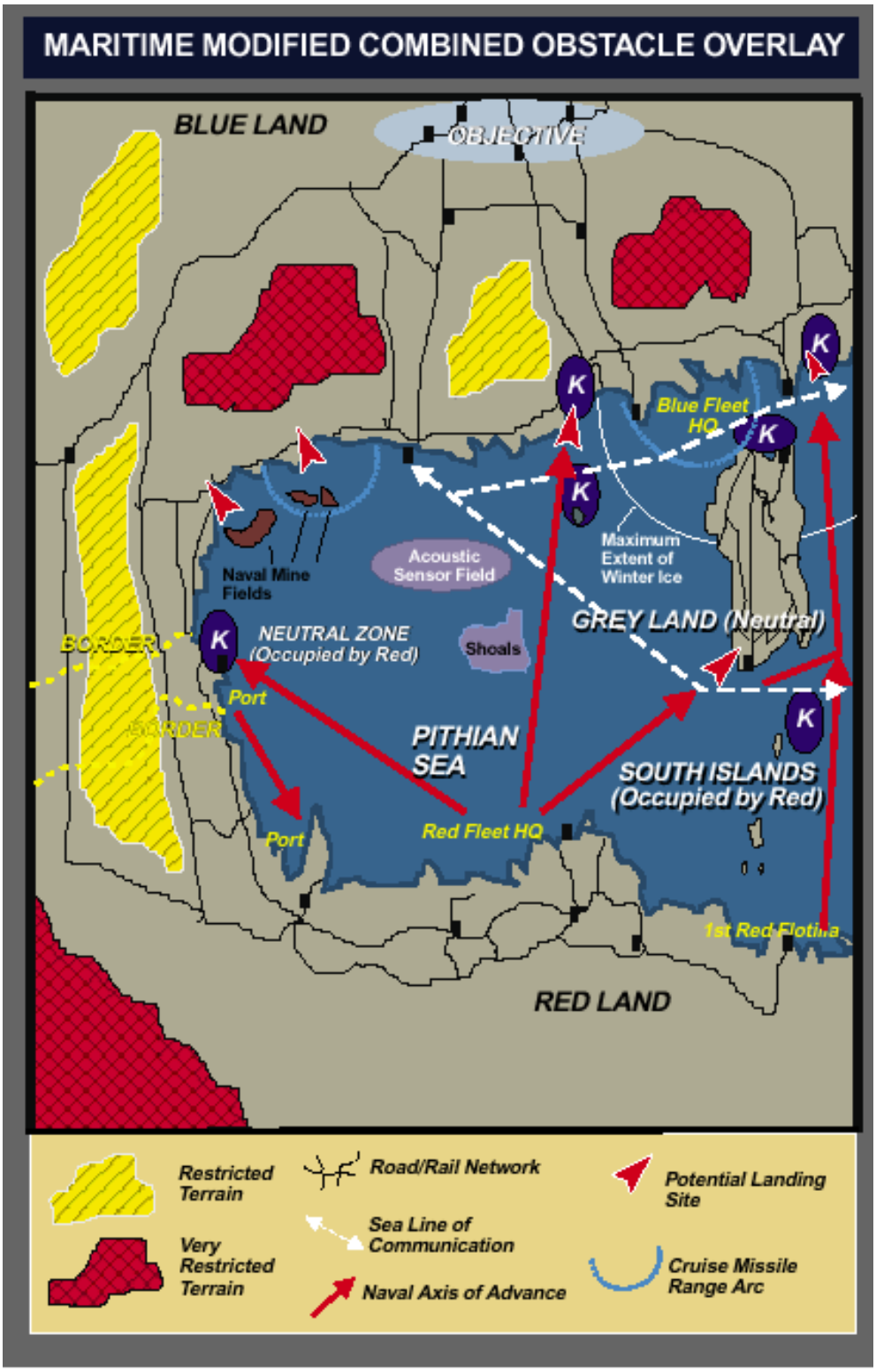


Figure A-2. Example of a Maritime MCOO (JP 2-01.3)

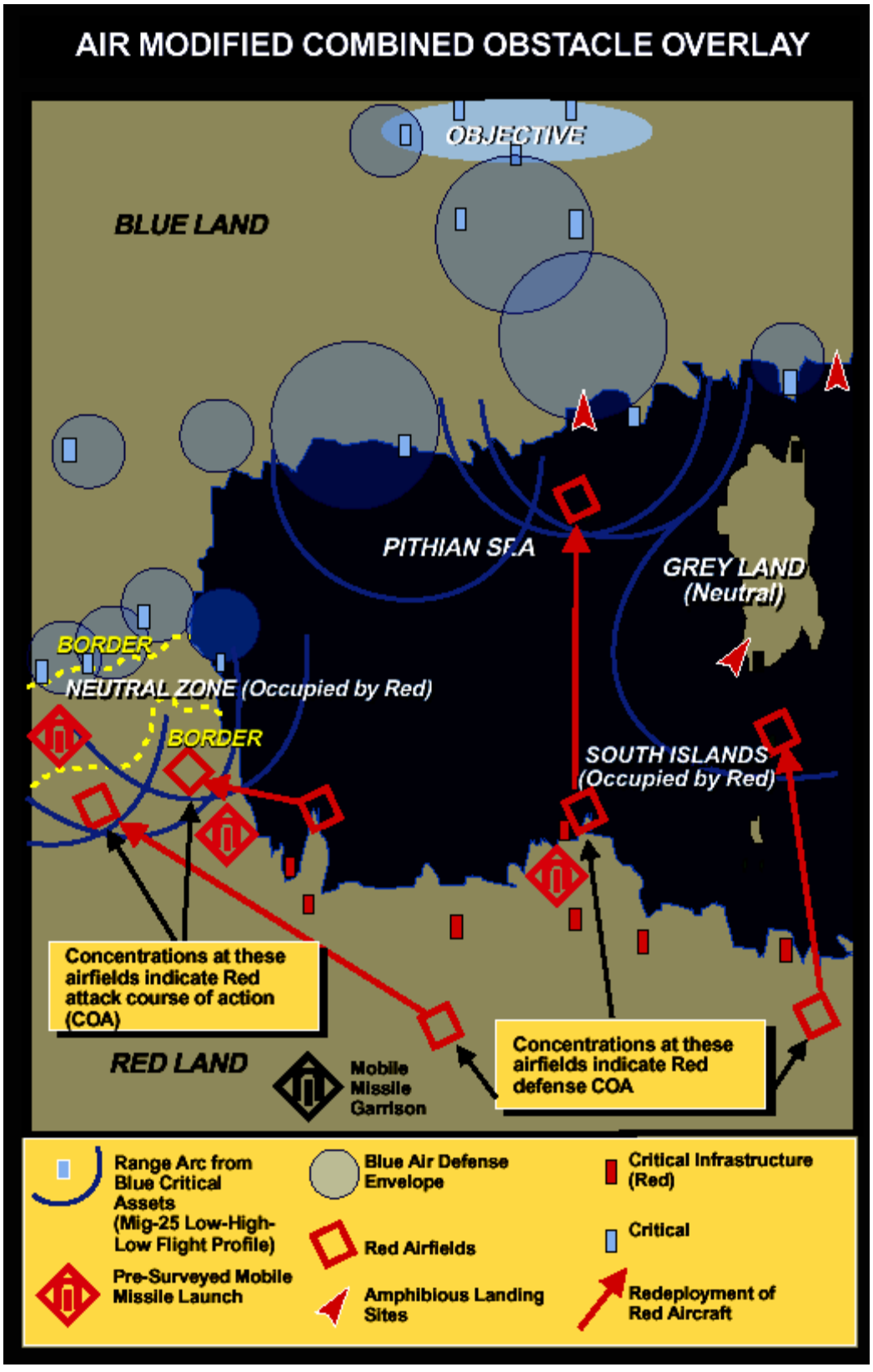


Figure A-3. Example of an Air MCOO (JP 2-01.3)

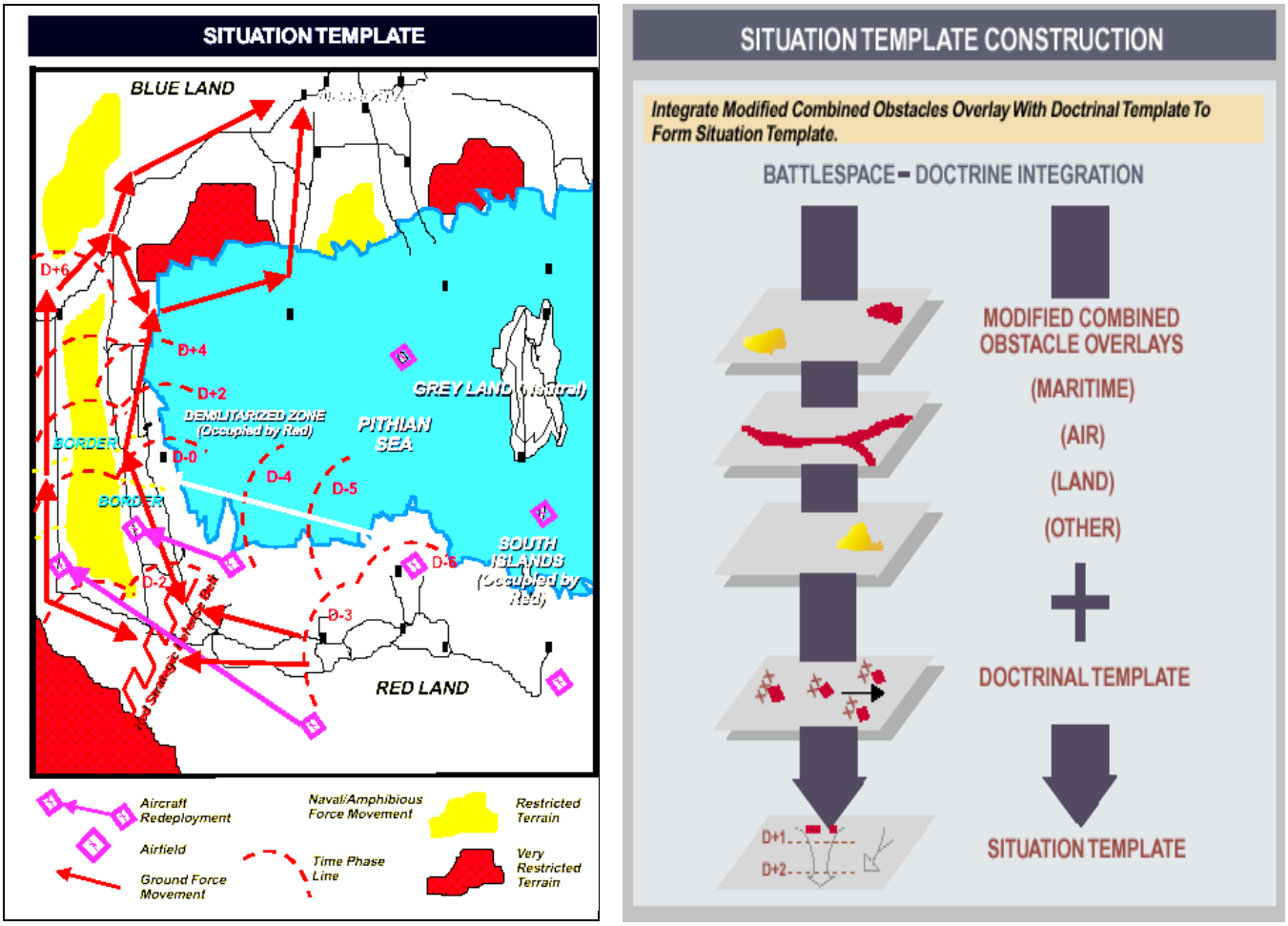


Figure A-4. Situation Template Construction and Example (JP 2-01.3)

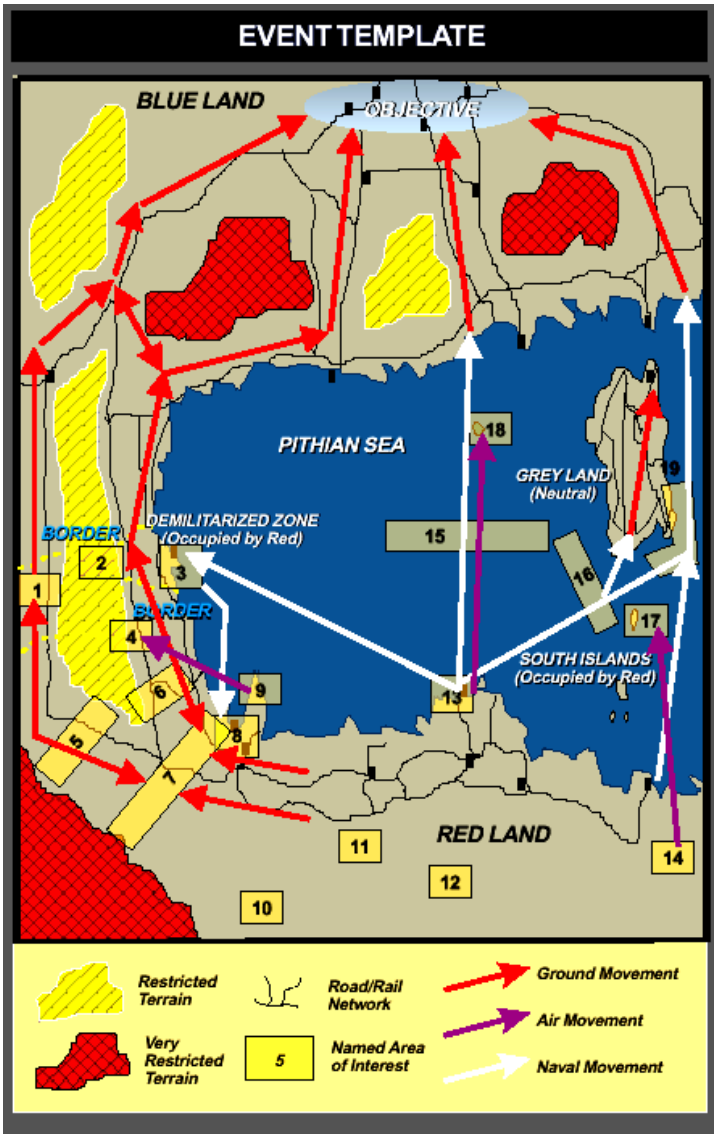


Figure A-5. Example Event Template Showing NAIs (JP 2-01.3)

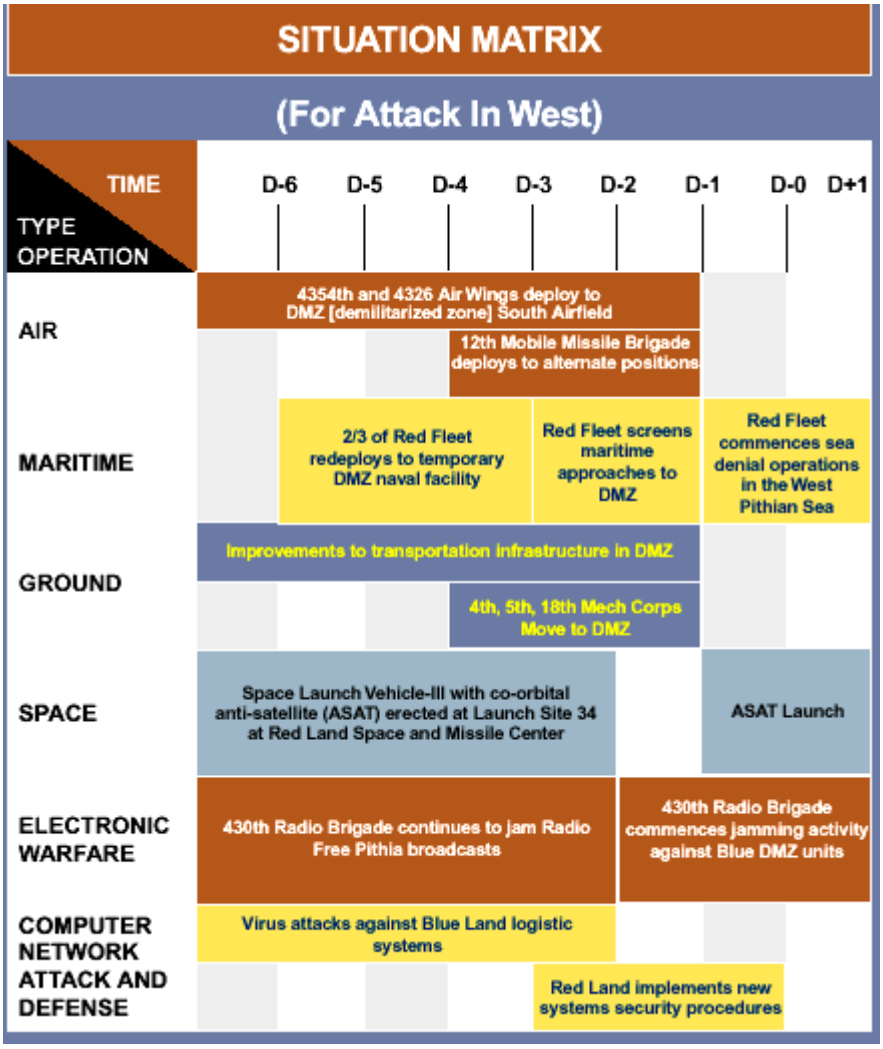


Figure A-6. Example of a Situation Matrix (JP 2-01-3)

Many different formats and methods may be used. An example of one type of collection matrix is provided below.

NAI	Est Time	Indicators ECOA1	Indicators ECOA2	Indicators ECOA3
1	D-3	Surface combatants missing from port		Forward movement of corps size force
2	D-2		Forward deployment of combat aircraft	Laying of minefields
3	D-1	Increased reconnaissance along coastal areas	Increased IADS readiness and activity	
4	H-12	Naval SOF activity		Artillery assault

APPENDIX B: Force Ratio / Force Multiplier Data

Summary:

This appendix lays out two methods of computing force ratios. Both methods are rough analysis techniques, which give planners a starting point for considering force requirements for a given operation. The first technique is a simple comparison of like type forces with little further refinement. The second, technique adjusts like type force comparison based upon differing force structures. Each technique requires increasingly more time to construct the supporting data. However, no matter which technique is used, the planners must also consider the impact of other tangible and intangible factors as well as the influence of other joint forces on the force ratios.

I. ANALYZING RELATIVE COMBAT POWER[31]

Combat power is the effect created by combining maneuver, firepower, protection, and leadership, the dynamics of combat power, in combat against the enemy. By integrating and applying the effects of these elements with any other potential force multipliers (logistics, morale, experience, doctrine, etc.) as well as other joint forces available against the enemy, the commander can generate overwhelming combat power to achieve victory at minimal cost. This task is difficult, at best. It requires an assessment of both tangible and intangible factors as well as consideration of an inordinate number of those factors either directly or indirectly affecting the potential outcome of the battle.

However, by analyzing relative-force ratios and determining and comparing each force's most significant strengths and weaknesses as a function of combat power, planners can gain some insight into:

- Friendly capabilities pertaining to the operation.
- What type operations may be possible from both friendly and enemy perspectives?
- How and where the enemy may be vulnerable?

Although some numeric relationships are used in this process, it is not like the former-Soviet mathematically substantiated computation for the correlation of forces. Rather, it is only a largely subjective estimate. The COAs must not be based strictly on mathematical analyses. Pure, logical approaches are often predictable, sacrificing the surprise that bold, audacious action can achieve.

1. Equal Value Force Ratios.

Planners can initially make a rough estimate of relative-force ratios. Figure B-1 shows an analysis in which planners are counting land-centric forces as roughly equal to enemy equivalents.

[31] This appendix draws heavily from the Army CGSC ST 100-3 Battle Book and FM 34-3 Intelligence Preparation of the Battlefield, Appendix F.

Friendly Force Unit	#	Enemy Force Unit	#
Armored Division	3	Armored Division	4
Airborne Brigade (1 ea)	(1/3 of a Div)	Airborne Regt. (1ea)	(1/3 of a Div)
TOTAL Ratio = 3.33 : 4.33 or 1.0 : 1.3	**3.33**	**TOTAL**	**4.33**

Figure B-1. Example of Equal Value Force Ratios (Equal Values)

2. Equivalent Relative Force Ratios.

Seldom will the U.S. face a force that has equal force values as we see in Figure B-1. In order for the planners to adapt this rough planning tool they must have a means to adjust enemy force values to an equivalency to U.S. forces. The intelligence staff is responsible for producing these enemy equivalency values. For example, though REDLAND may have fielded Armored Divisions, their Divisions may be smaller, with fewer tanks of lesser capability than the U.S. Armored Division. As such, the intelligence staff may assess the REDLAND Division at a lesser value than the U.S. Armored Division, possibly a .55 value. The same analysis would follow for each REDLAND combat capability. A further refinement of this process would be using a single base combat element (in this case an Armored Division) and providing an *equivalent relative value* to each force element (both enemy and friendly). For example, a U.S. Airborne Brigade's relative strength to a U.S. Armored Division is .30 and a REDLAND Airborne Regiment might have an assessed value of .25. See Figure B-2 for an example of relative combat power computations.

Friendly Force Unit	#	Enemy Force Unit	#
Armored Division (3)	3	Armored Division (4)	1.20
Airborne Brigade (1)	.30	Airborne Regiment (1)	.25
Attack Avn Brigade (1)	.50	Aviation Regiment (1)	.30
Field Arty Brigades (4)	1.20	Field Arty Regiments (3)	.90
		Anti-Tank Regiment (1)	.20
TOTAL Ratio = 5 : 2.85 or 1.0 : .6 NOTE: Using Armored Division Equivalents	**5**	**TOTAL**	**2.85**

Figure B-2. Example of Equivalent Relative Force Ratios (Relative Values)

This form of calculation is normally only applied between like services, since assessing an Armored Division Equivalent (or other single service combat force) value to a Carrier Battle Group or Air Superiority Squadron becomes complex and diminishes the value of this rough analytic tool. Techniques that integrate other joint force assets are addressed later in this appendix.

3. Other Force Ratio Considerations.

When the staff finishes its computations, it draws conclusions about friendly and enemy relative capabilities and limitations as they pertain to the operational situation. These computations give the staff a feel for relative strengths and weaknesses, but not absolute mathematical answers as to what friendly or enemy forces will do. Numerical relative-force ratios do not include the human factors of warfare. Many times human factors may be more important than the number of tanks or tubes of artillery. Therefore, the staff must carefully consider and integrate them into their comparisons. By using historical minimum-planning ratios for various combat missions and carefully considering terrain and enemy templating assumptions, planners can generally conclude what type of operations they can conduct (Figure B-3).

Friendly Mission	Friendly: Enemy	Position
Delay	1 : 6	N/A
Defend	1 : 3	Prepared or fortified
Defend	1 : 2.5	Hasty
Attack	3 : 1	Prepared or fortified
Attack	2.5 : 1	Hasty
Counterattack	1 : 1	Flank

Figure B-3. Example of Historical Minimum Planning Ratios

A planner first compares the relative force ratios with the ratios in column 2 of Figure B-3. He can then determine if his unit has the odds that would give him the flexibility to conduct any type of operation he desires. The J2/G2/N2 will also assess if the enemy has that capability. In a defensive situation, the planner would know the enemy must conduct a penetration. In an offensive situation, he would know he could not conduct offensive operations without massing his forces and accepting risk in some area. He would be able to use this information when he begins developing a scheme of maneuver. If he identifies a ratio closer to one of the other planning ratios, he could draw other conclusions indicating another type of possible operation. This step provides the planner with a notion of "what to"; not "how to." There is no direct relationship between force ratios and attrition or advance rates. Relative-force ratios do not necessarily indicate the chance for success.

II. REFINE ANALYSIS AND DETERMINE RELATIVE COMBAT POWER

The values calculated earlier are empirical values based solely on relative technological levels, equipment capabilities, and manning levels of the affected units. Other factors such as weather, morale, leadership, training, terrain, cultural and societal limitations, relative technological levels between the forces, and surprise can greatly influence the relative combat power of units.

> "A unit can achieve effects beyond its absolute combat power by maximizing relative combat power potential. Through the application of strengths against weaknesses and the minimization of weaknesses against enemy strengths, the maneuver-oriented unit can attain a relative combat power advantage against a numerically superior force."[32]

The J2/G2/N2 must incorporate subjective factors into the analysis to more precisely determine the relative combat power between friendly and threat forces. When realistically conducted, the wargaming phase of the CES is particularly useful in determining some of the additional factors that will influence the combat power of a unit. Some factors that may affect relative combat power potential:

1. Force Capabilities.

Air, Naval, and Space Superiority: Air, naval, and space superiority generally allow the dominant power to more effectively deliver munitions against land threat forces, and conduct more efficient resupply operations. Bad weather, favorable terrain for the threat forces, lack of suitable port facilities or airfields, or an effective concealment and deception plan can mitigate these advantages.

Information Operations (IO): Information operations include military deception, counter-deception, OPSEC, electronic warfare capabilities, information assurance, psychological operations, counterintelligence, and counterpropaganda operations. The threats ability to conduct or counter friendly efforts in the IO spectrum can decisively influence the relative combat potential of a threat force.

Information Superiority: Relative advantages in intelligence and command and control can decisively influence the outcome of combat and substantially increase the lethality of friendly forces. Initiative in the areas of digitalization, automation, and intelligence provide a significant advantage to U.S. forces due to significant advantages in situational awareness. The availability of other assets such as JSTARS and tactical UAV can drastically improve targeting. On the other hand, loss of these systems or an effective threat deception plan can neutralize the advantages of these assets.

NBC Capabilities: The presence of NBC munitions, delivery systems, their use or indications of imminent use may significantly affect the relative combat power potential. Also considered under this category is whether the threat force possesses the national will to use NBC weapons.

[32] Army CGSC ST 100-3, pp. 15-17.

Special Operations Forces (SOF): Both threat and friendly special operations forces are a force multiplier, the effects of whose actions cannot be quantified through the calculation of a Relative Combat Power Value. For example, the presence of a small threat SOF unit in the friendly force's rear area, although relatively ineffective in terms of combat power, may divert significant forces for rear area security. Several threat countries maintain a robust SOF capability, which through sabotage and other operations may profoundly affect friendly force combat and resupply operations.

Threat Leadership and C2: Command and control may also influence threat capabilities, especially if threat leadership has either positively or negatively influenced morale. Charismatic leadership may greatly improve threat unit capabilities, whereas either poor leadership or successful efforts by friendly forces to undermine threat command-and-control may diminish the relative capabilities of threat units.

2. Environmental Effects.

Terrain: Terrain affords each force certain mobility or positional advantages and disadvantages. The relative advantages and disadvantages will further define how effectively each unit is able to bring its combat power to bear. Each unit's knowledge of the area of operation can also influence the relative combat power of each. In most instances, the force most familiar with the terrain will be able to use its existing combat power most effectively.

Weather: Weather conditions may provide an advantage to either friendly or threat forces that could improve or diminish their relative combat power. For example, under certain environmental conditions such as heavy fog or smoke obscuration, the US force may have a relatively greater capability to detect threat movement at longer ranges due to a technological advantage in thermal sight capability or ground-surveillance radar. Under those specific conditions, forces may have a greater force value than originally assigned. The intelligence officer for the US force under these weather conditions may choose to subjectively downgrade the values for the opposing units to reflect these conditions.

3. Combat Effects.

Experience: Relative levels of combat experience of the threat commander will influence the combat effectiveness of the units and therefore the relative force ratios.

NBC Posture: Operations in an NBC environment or by personnel in NBC defensive gear may significantly degrade due to the physical and psychological limitations of operating in an NBC environment.

Reconstitution: The ability of a force to reconstitute itself during a campaign will significantly affect the combat strength of the unit. Additionally, a reconstituted force will possess somewhat less combat power than the original force due to the effects of integrating new personnel, losses in leadership and experience, combat damage to equipment, etc.

Tactical Surprise: Surprise may significantly influence the relative combat power resulting in a significantly higher value for the surprising force. The intelligence analyst must subjectively determine how drastically the element of surprise will affect the force ratio.

Threat Morale: Morale is an intangible that may greatly affect the combat power of a unit. An assessment of the threat forces' morale may be based on human intelligence (HUMINT) or communications intelligence (COMINT) reporting, observed threat behavior, or other forms of reporting and can be difficult to discern reliably except under extreme circumstances. For example, threat forces defending their homeland, although under demoralizing conditions, may be highly motivated and be capable of defending at a higher level than represented in the assigned force values. Conversely, friendly psychological or combat operations may substantially degrade the morale of a threat force.

4. Other Factors.

Other factors such as training, cultural, societal, or seasonal limitations may further affect threat and friendly unit relative capabilities.

The scope of the calculations for absolute force ratios and relative combat force potential is limited only by time and analytical resources. Deliberate planning may allow for a more thorough calculation of force ratios, while the analyst in a high OPTEMPO environment may be able to complete only a rudimentary calculation during the CES.

At the end of this analysis, the intelligence analyst should be able to succinctly state the relative combat potential for the threat force. For example, "although the absolute force ratio between the U.S. force and the 23rd Guards Division is 1.96: 1.00, REDLAND, has superior knowledge of the terrain and has occupied heavily fortified defensive positions along the high ground in vicinity of the capital city. According to HUMINT reporting, the morale of 23rd Guard's units is mostly high. Their leadership has participated in four other battles against U.S. forces, and has likely learned from those experiences.

Appendix C: Center of Gravity Determination

Identification of both the enemy and friendly centers of gravity is an essential element of any plan. If the staff gets this part wrong the operation will, at best, be inefficient, and at worst, end in failure. The purpose of this appendix is to provide the planner with a brief review of the requirements for each of the information requirements displayed in the center of gravity (COG) worksheet found in STEP 1, Part 1 of this workbook. This appendix is not intended to replace the extensive study of the nuances of COG analysis which all planners should strive to master; rather, it is intended to identify information requirements and to offer some considerations in the application of the collected data. Many will observe that this workbook offers a blend of two complementary theoretical constructs, those of Dr. Milan Vego and the perspective of Joint Doctrine (which partially reflects many of the thoughts of Dr. Joe Strange). One should find that Dr. Vego's explanation offers the planner a useful technique for identifying the COG and potential considerations for its defeat, while Dr. Strange's concept provides a methodology for a systematic approach for the employment of effects upon the COG. Used in concert, the two theories provide the staff officer with a suite of COG planning considerations.

The reader will note that this workbook has the staff collecting information for both the enemy and friendly COGs. Neither can be identified nor considered in a vacuum—a common staff planning mistake. The struggle between opposing forces employing their unique means and ways to achieve their respective ends (objectives) is a dynamic that can only be appreciated if they are viewed collectively. While the explanations and examples provided below will be for enemy COG analysis, the process is the same for determining and analyzing friendly COGs. The only differences are in the planning actions taken once the analysis is completed. Planners will develop courses of action that focus on defeating the enemy's COG while at the same time mitigating risks to their own COG.

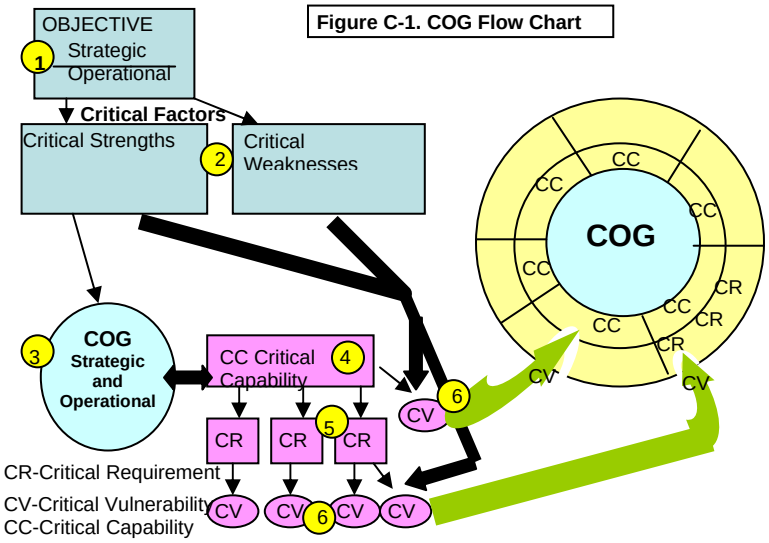


Figure C-1. COG Flow Chart

Figure C-1, COG Flow Chart, identifies the flow that is used in this workbook to identify a COG and to determine the ways in which it can be attacked. Each step of the process, as they correspond to the numbers in figure C-1, is described below and an example, using an Enemy COG analysis of Desert Storm, is provided in Table C-1.

1. IDENTIFY THE OBJECTIVE(S). This is a critical first step. Before one can determine a COG, the objective(s) must be identified. If this portion of the analysis is flawed, then the error will infect the remainder of the process. The planner should first determine the ultimate (strategic or operational objectives) and then the intermediate (operational or major tactical objectives). The operational objectives should show a direct relationship to the strategic objectives. If this linkage between strategic and operational objectives cannot be established, the objectives are suspect. Remember, objectives, and particularly strategic objectives, usually have requirements / tasks that fall primarily into the responsibility of instruments of power other than the military. These are still important to identify since the military may have a supporting role in their accomplishment.

2. IDENTIFY CRITICAL FACTORS. Critical factors are those attributes considered crucial for the accomplishment of the objective. These factors that in effect "describe" the environment (in relationship to the objective) must be identified and classified as either sufficient (critical strength) or insufficient (critical weakness). Vego defines critical factors as "a cumulative term for critical strengths and critical weaknesses of a military or nonmilitary source of power; they can be quantifiable (tangible) or unquantifiable (intangible); critical factors are present at each level of war; they require constant attention because they are relative and subject to changes resulting from the actions of one's forces or of the enemy's actions"(*Operational Warfare*, 635). It is important while conducting the analysis for this step that planners maintain a sharp eye on the objectives identified in the first step—each level of war will have critical factors that are unique to that level. The questions which should be asked when determining critical factors for the enemy are: "What are the attributes, both tangible and intangible, that the enemy has and must use in order to attain his strategic (operational) objective?" These are critical strengths. The second question is, "What are the attributes, both tangible and intangible, that the enemy has and must use in order to achieve his strategic (operational) objective, but which are weak and may impede the enemy while attempting to attain his objective?" These are critical weaknesses. The answers to these two questions will produce a range of critical strengths and critical weaknesses associated with specific levels of war. One should note, that like the close relationship expected to be found between strategic and operational objectives, there will undoubtedly be some critical strengths and critical weaknesses that have a similar close relationship between the corresponding critical factors (for example: a strategic critical weakness, such as a strategic leader having a tenuous communications link to his fielded forces may also create an operational critical weakness for fielded forces unable to reliably communicate with their higher command).

3. IDENTIFY THE CENTER OF GRAVITY. Joint doctrine identifies the COG as "those characteristics, capabilities, or sources of power from which a military force derives its freedom of action, physical strength, or will to fight" (*JP 5-00.1*, II-6). While agreeing with the joint definition, Vego offers the planner another way to view this all important concept. He states that a COG is "that source of massed strength—physical or moral, or a source of leverage—whose serious degradation, dislocation, neutralization, or destruction would have the most decisive

impact on the enemy's or one's own ability to accomplish a given military objective" (*Operational Warfare*, 634).

While both definitions are helpful for assisting in the identification of the operational COG, when considering the strategic COG, a planner should be alert for the fact that both definitions appear focused upon only the military aspects of the analysis. In view of the discussion in the first step, when strategic objectives are being identified, remembering that the role of instruments of power other than the military may prevail, planners should consider a broader application of the two definitions.

The COG (s) at each level of war should be found among the listed critical strengths identified within the critical factors of step two. While all of the identified strengths are critical, the planner must deduce which among those capabilities identified rise(s) above all others in importance in accomplishing the objective (that is, those tangible and intangible elements of combat power that would accomplish the assigned objectives) —this critical strength is the COG. This does not diminish the importance of the other critical strengths; however, it forces the planner to examine closely the relationships of the various critical strengths to one another and the objective. This analysis of these relationships will prove important in the next step.

4. IDENTIFY CRITICAL CAPABILITIES. Joint doctrine identifies critical capabilities as "those adversary capabilities that are considered crucial enablers for the adversary's COG to function as such, and are essential to the accomplishment of the adversary's assumed objective(s)" (*JP 5-00.1*, II-7). If the COG is a physical force (often the case at the operational level), the staff may wish to begin their examination of critical capabilities by reviewing the integration, support, and protection elements of one's own or enemy combat power as they apply to the COG. Many of these elements are often found in the *Operational Functions* as described in the UJTL. Moreover, these capabilities will often be found within the critical strengths and weaknesses identified in step two. The planner should be alert for two major considerations. First, although a capability is a critical strength, if it bears no relationship to the identified COG it cannot be considered a critical capability. The second consideration is that although we perceive some capability as a critical weakness, if it is an essential enabler for the enemy COG then it is a critical capability, albeit weak in nature. An example of this phenomenon could be the same communications circumstance offered earlier in step two. A critical capability for an operational center of gravity to accomplish its mission might be its ability to exert command and control (C2)—its ability to receive direction as well as communicate directives to subordinates. The fact that we have deduced this to be a weakness does not diminish its importance to the COG for accomplishment of its assigned mission. This insight of a capability's weakness will be applied at a later step.

5. IDENTIFY CRITICAL REQUIREMENTS. Once a COG's critical capabilities are identified, the next step is for the staff to identify "those essential conditions, resources, and means for a critical capability to be fully operational" (*JP 5-00.1*, II-7). These are the critical requirements that support each of the critical capabilities. This is essentially a detailed view of what comprises a critical capability. Using the C2 example as a critical capability, the critical requirements might include tangible requirements such as: communication nodes, antennas, frequency bands, individual command posts, spare parts, band width, specific satellites, etc. It may also include intangibles such as commander's perceptions and morale.

Planners should be cautious at this point. One will be presented with a wealth of potential targets or tasks as each critical capability is peeled back and the numerous supporting critical requirements are identified. There is often a temptation to stop at this point of the analysis and begin constructing target lists. Such an action could result in a waste of resources and may not be sufficient to achieve the desired effects. The planner should find the sixth step as a more effective way to achieve the defeat of a COG.

6. IDENTIFY CRITICAL VULNERABILITIES. Joint doctrine defines critical vulnerabilities as "those aspects or components of the adversary's critical capabilities (or components thereof), which are deficient, or vulnerable to neutralization, interdiction, or attack in a manner achieving decisive or significant results, disproportionate to the military resources applied" (*JP 5-00.1*, II-7). The planner should contemplate those critical capabilities and their supporting critical requirements in this regard, keeping in mind that these weaknesses must bear a direct relationship to a COG and its supporting critical capabilities for it to be assessed as a critical vulnerability. Striking a weakness that bears no such relationship is simply a measure taken to harvest "low hanging fruit," which offers no decisive benefit.

The planner should also take this opportunity to consider the previously assembled lists of critical strengths and critical weaknesses from step two to determine if there are any critical factors with a close relationship to the COG that were not captured in the previous critical capability / critical requirement steps (steps four and five).

While the planner will first seek critical weaknesses within the critical capabilities and supporting critical requirements, as implied by joint doctrine, Vego cautions that there might be opportunities found in critical strengths that provide decisive or significant results disproportionate to the military resources applied. An example might be the Integrated Air Defense (IAD) that is protecting an operational COG. While this critical capability might be assessed as a strength, its neutralization and the subsequent opening of the COG to direct attack may be assessed by the commander as more favorable in regard to the amount of resources and time expended to achieve the desired effects.

7. IDENTIFY DECISIVE POINTS. Though not reflected in Figure C-1, identification of decisive points remains an important feature of the COG analysis and its subsequent defeat or neutralization. Joint doctrine identifies decisive points as "a geographic place, specific key event, critical system, or function that allows commanders to gain a marked advantage over an adversary and greatly influence the outcome of an attack" (*JP 5-00.1*, II-14). As with all previous steps, the value of a decisive point is directly related to its relationship to a COG and its objective. If there is no relationship, it is not a decisive point. A decisive point is neutral in nature; that is, it is by definition important to both the enemy and friendly commanders. If, for example, an APOD/SPOD complex is a decisive point for a friendly commander enabling him to project his COG through it on the way to the objective, the enemy commander will also assess the complex as a threat to his COG and should attempt to deny the friendly force commander control of the decisive point. In both cases, this decisive point, if within the capability of the force, will undoubtedly become an objective or task assigned to both enemy and friendly subordinate commands. Failure to do so becomes an identified risk to one's COG.

The planner must remember that this is a dynamic process. Any changes in the information considered in the first two steps of this process require the staff to revalidate its conclusions and

subsequent supporting operations. As objectives change, the sources of power required to achieve the desired end might also chage. As new sources of strength appear in the battlespace, how do they interact?

Table C-1, Desert Storm Enemy COG Analysis, provides an example COG analysis using the worksheet provided in this workbook. This example is not intended to be exhaustive and serves only as an illustrative example, exploring only a single critical capability and its associated critical requirements, and offering simply a selection of decisive points.

Table C-1. Desert Storm Enemy COG Analysis

Enemy Center of Gravity Determination

Identify

1a. Strategic Objective(s)

- **Retain Kuwait as 19th Province**
- **Enhance Saddam Hussein's hold on power**
- **Increase Iraq's political and military influence in the Arab world.**
- **Increase Iraq's power and influence within OPEC**

1b. Operational Objective(s)

- **Defeat or neutralize a coalition attack to liberate Kuwait**
- **Prevent coalition forces from obtaining air superiority**
- **Prevent coalition forces from obtaining sea control in the northern part of the Persian Gulf**

2a. Critical Strengths

- **Integrated Air Defense (IAD)**
- **WMD**
- **Land-based ballistic missiles (Scuds)**
- **Republican Guards in the Kuwait Theater of Operations (KTO)**
- **Forces are in defensive positions**
- **Saddam and his strategic C2**
- **Combat experienced units and commanders**
- **Missile-armed surface combatants**
- **Sea Mine inventories and delivery platforms**

2b. Critical Weaknesses

- **World Opinion; Arab world outrage**
- **Long and exposed Land LOCs from IRAQ to KTO.**
- **Combat skills and readiness of the Air Force**
- **Numerical and qualitative inferiority of naval forces**
- **Low morale and poor discipline of regular forces**
- **Class IX for weapon systems**
- **Inadequate forces to protect the Iraq-Iranian border**

3a. Strategic COG

Saddam and his inner circle security apparatus

3b. Operational COG

Republican Guards in the Kuwait Theater of Operations (KTO)

Note: for the sake of brevity, this example will only examine the Operational COG

4. Critical Capabilities

- Sustain Rep Guard forces in KTO (Log)
- Receive strategic direction and provide directives to subordinate units (C3)
- **Protect forces from coalition airpower (Integrated Air Defense--IAD)**
- Employ conventional defensive forces as a screening force
- Maintain organizational morale

Note: for the sake of brevity, this example will only examine the single critical capability of IAD

5. Critical Requirements (per the example IAD)

- Radar Sites
- Communication nodes
- Iraqi Air Force
- Class IX for IAD systems
- Resupply of Class V
- Morale of fixed site crews

6. Check CVs

✓ Radars vulnerable to jamming
✓ Air Force
✓ LOCs & Class IX

Enemy Decisive Points

(NOTE—SELECTED EXAMPLES, NOT AN EXHAUSTIVE LISTING)

- APODS & SPODS in Saudi Arabia
- Strait of Hormuz
- APODS in Turkey
- C3I nodes

APPENDIX D: Sample Planning Assumptions

- Shipping and air augmentation assets will be available when the country YELLOW becomes involved in the hostilities.
- Country YELLOW will remain neutral, but will deploy the major part of its forces along the border of country BRAVO.
- Country GREEN will (not) allow use of its ports and air heads for transit of BLUE forces.
- Canal ZULU will remain open during hostilities for all U.S. shipping.
- Country PURPLE and YELLOW will (not) remain neutral.
- Country GREEN will (not) allow over flight rights to U.S. aircraft.
- Country ORANGE will (not) provide basing rights for U.S. ships carrying nuclear weapons.
- Country CRIMSON will (not) allow basing of U.S. ships and aircraft if they do (not) conduct combat missions against country RED.
- Country BROWN will not grant basing rights to the enemy forces.
- RED will (not) use weapons of mass destruction (WMD).
- No RED reinforcements are expected in the Bravo area.
- RED Force ALFA will (not) use air surveillance/targeting aircraft.
- Ratios of forces will (not) remain unchanged for the next 48 hours.
- Reserves will be fully mobilized NLT _____.
- Forces will deploy with _____ Days of Supply.

APPENDIX E: Risk Assessment

Risk is inherent in any use of military force or routine military activity. Earlier, in STEP 1, the commander conducted his initial risk assessment. In STEP 2 the staff will develop a more focused view of the operational risks and offer means to mitigate them. There are several types of risk. However, the risk discussed in relation to the CES is associated with the dangers, which exist due to the presence of the enemy, the uncertainty of the enemy intentions, and the potential rewards, or dangers of friendly force action in relation to mission accomplishment.

Where resources are scarce, the commander may accept risk by applying the principle of economy of force in one area (supporting effort) in order to generate "massed effects" of combat power elsewhere (main effort). In an effort to affect surprise or maintain tempo he may begin action prior to the closure of all units or sustainment. To maneuver or move the force for further actions he may sacrifice somewhat on force protection by transiting a part of the force through a contested area. It is the rare situation where forces are so mismatched that the commander is not concerned with risk to the mission, and even in these situations he will still desire to minimize the individual risk to his forces. All these are examples of risk - risk a commander alone determines how and where he is willing to accept.

While risk cannot be totally eliminated, it can be "managed" by a systematic approach that weighs the costs - time, personnel, resources - against the benefits of mission accomplishment. Commanders have always risk-managed their actions: intuitively, by their past experiences, or otherwise. Risk management won't prevent losses but, properly applied, it will allow the commander to take necessary and prudent risks without arbitrary restrictions, and while maximizing combat capabilities.

Accepting risk is a function of both risk assessment and risk management. This entails:

- ***Identification of threats.*** Identify threats to the force. Consider all aspects of **M**ission, **E**nemy, **T**errain, **T**ime, **T**roops, and **C**ivil Considerations (METT-TC) for current and future situations. Sources of information about threats include reconnaissance, intelligence, experience/expertise of the commander and staff, etc.

- ***Assessment of threats***. Assess each threat to determine the risk of potential loss based on **probability** (frequent–occurs often, continuously experienced; likely–occurs several times; occasional–occurs sporadically; seldom–unlikely, but could occur at some time; unlikely–can assume it will not occur) and **severity** (catastrophic–mission is made impossible; critical–severe mission impact; marginal–mission possible using alternate options; negligible–minor disruptions to mission) of the threat. Determining the risk is more an art than a science. Use historical data, intuitive analysis, and judgment to estimate the risk of each threat. Probability and severity levels are estimated based on the user's knowledge of probability of occurrence and the severity of consequences once the occurrence happens. The *level of risk* is assessed by a combination of the threat, its probability of occurring, and *degree of severity*. The levels of risk are extremely high–loss of ability to accomplish mission; high–significantly degrades mission capabilities in

terms of required mission standard; moderate–degrades mission capabilities in terms of required mission standards; and low–little or no impact on accomplishment of the mission.

- ***Address risk, determine residual risk, and make risk decision*.** For each threat, develop one or more options that will eliminate or reduce the risk of the threat. Specify who, what, where, when, and how. Determine any residual risk and revise the evaluation of the level of risk remaining. The commander alone then decides whether or not to accept the level of residual risk. If the commander determines the risk is too great to continue the mission or a COA, he directs the development of additional measures to account for the risk or he modifies (or rejects) the COA.

- ***Define indicators.*** Think through the threat—what information will provide indication that the risk is no longer acceptable? Ensure subordinates and staff are informed of the importance of communicating the status of those indicators.

- ***Observe and evaluate*.** In execution, monitor the status of the indicators and enact further options as warranted. After the operation, evaluate the effectiveness of each option in reducing or eliminating risk. For options that were not effective, determine why and what to do the next time the threat is identified.

Applying risk management requires a clear understanding of what constitutes "unnecessary risk," when the benefits actually do outweigh costs, and guidance as to the command level to make those decisions. When a commander decides to accept risk, the decision must be coordinated with the affected units—where and how the commander is willing to accept risk is detailed in each COA.

Bottom Line: Planners must identify risks inherent to the operation and offer specific measures in their COAs/CONOPS to mitigate the risks. The commander must be aware of the residual risk after mitigating measures have been applied.

APPENDIX F: Examples of Governing Factors

- Which is most *decisive*?
- Which requires the *least time*?
- Which is least complicated by *Rules of Engagement*?
- Which allows the greatest flexibility in selecting the *time and place* of the action?
- Which offers the greatest *flexibility*?
- Which offers the least *operational risk*?
- Which is easiest to support from the perspective of *command, control, and communications*?
- Which offers best logistics/sustainability?
- Which makes the enemy's *logistic support* most difficult?
- Which is most dependent on *weather*? on *terrain*?
- Which offers best use of our *transportation links*?
- Which has the most adverse affect on the enemy's *center of gravity*?
- Which allows the accomplishment of the assigned objective in the *shortest time*?
- Which will best facilitate the attainment of the next *objective*?
- Which best capitalizes on the *Principles of War* (MOOSEMUSS) or *Principles of MOOTW* (SLURPO)? (List each or selected ones as directed.)
- Which offers the *least losses*?
- Which inflicts the *largest losses* on the enemy?
- Which offers the greatest hope of splitting the *enemy's coalition*?
- Which will most strengthen the cohesion of *our coalition*?
- Which will reduce the enemy *morale* the most?
- Which offers the most favorable ratio of relative *combat power*?
- Which will best facilitate *future operations*?

NOTE: No matter which Governing Factors are chosen, it is important that every member of the joint planning group have the same understanding of what the factor means. For example, simply stating "Risk" as a governing factor with no further explanation could lead to multiple interpretations: Risk to forces? Risk to aircraft / ships / coalition? Risk of mission failure? etc.

APPENDIX G: Sample Decision Matrix

GOVERNING FACTORS	**WT**	**COA #1**		**COA #2**		**COA #3**		**COA #4**	
SIMPLICITY	**3**	2	6	1	3	4	12	3	9
SURPRISE	**1**	2	2	3	3	3	3	4	4
SPEED	**2**	1	2	2	4	3	6	4	8
MASS	**4**	3	12	1	4	2	8	4	16
RISK	**2**	4	8	3	6	4	8	4	8
FLEXIBILITY	**4**	3	12	3	12	4	16	3	12
SUSTAINABILITY	**3**	3	9	3	9	2	6	3	9
C2	**3**	3	9	2	6	1	3	3	9
TOTAL		21		18		23		28	
WEIGHTED TOTAL			60		47		62		**75**

NOTE: This is simply a staff planning decision aid, and should be viewed as such. Selection of a numerically superior COA may not be the best recommendation. The strength of this aid is that it allows the commander and staff to systematically review specific important strengths and weaknesses of each COA.

1. Numerical values for each governing factor are assigned after the COA is war-gamed. These values reflect the relative advantages or disadvantages of each governing factor for each COA.

2. These numbers provide a subjective evaluation of the best COA without weighting one governing factor over another.

3. The weights are multiplied by the initially assigned score in each column.

4. Scores are totaled to provide a “best” COA based on weights assigned by the commander.

5. There is no requirement to rank each COA governing factor (i.e., all three COAs can receive the same assessment score for a particular governing factor).

6. There are other recording techniques that can be used by the JPG/OPG. The staff can assign + (for strengths), - (for weaknesses), and 0 (for neither a strength or weakness) and then add up the results. The COA with the largest number of +s is assessed as "best."

APPENDIX H: Joint Synchronization Matrix

The Joint Synchronization Matrix is a staff *decision and planning aid* that graphically reflects the *joint*[33] execution of an operation over a specific time period. Once completed, the matrix will provide the staff:

- A graphic portrayal of the synchronization of subordinate tasks during the operation and a means to refine the synchronization of events / actions that did not receive detailed attention during the earlier CES steps.
- A graphic portrayal of the key decision points for the operation.
- A clear focus for supporting activities (logistics, IO, Intelligence collection, etc.).
- A means to identify and prioritize branch planning requirements.
- A graphic portrayal of the plan / order—with a completed matrix in hand, a single planner can now quickly develop the base plan /order.

The construction of the matrix should begin during the wargame (see STEP 3 of the CES on page 3-1) in the form of a wargaming worksheet, however, the full value of the matrix is most often realized after the commander has approved a course of action (COA) and the operational sequencing of the operation has been established.

Upon receipt of the commander's decision (STEP 5 of the CES), the planning staff should assemble and complete the matrix. The organizational mechanics of the how the staff completes the matrix are the same as used during the wargame as described in STEP 3 of this workbook.

The first two decisions that must be made are: 1. Will the matrix synchronize by event or time period (or a combination thereof)? 2. What forces / functions and activities will the matrix synchronize? There are no hard and fast answers to these questions, and they are most often tailored to the given situation. Consider the following for each of these decisions:

- **Forces / Activities.** Along the left column of the matrix, the staff will list the forces, activities, and decisions to be synchronized. The minimum requirement for listing is for all the commands that will be tasked in the order. Most staffs also find useful to list any activities that will be in support of the operation (such as logistics, IO, Intelligence) as well as organizations / forces not under your control but important to your operations (NGOs, UN, Host nation, allied force, etc). See the example matrix; figure H-1, on page H-3.

[33] Though this matrix is being used for joint synchronization, component-level commanders also use this tool for synchronization of their subordinate elements with the joint force operation.

- **Time**[34] **or Event.** The top line of the matrix is for the time period or events to be synchronized. As a rule of thumb, there is a proportional reduction in the granularity of synchronization as the time period broadens. So, for example, if the staff chooses to simply synchronize by operational phase, it will likely fail to expose all synchronization requirements if there are multiple critical events executed during each phase of the operation. On the other hand, a detailed day by day synchronization matrix could create an ungainly tool. With these considerations in mind, staffs often find most useful to use a combination of the two. For the early phases, smaller time periods or multiple events are listed, while the latter phases are not broken down further. This technique allows for detailed synchronization of the events that are near term (and the ones we know most about) and less detail for those phases that are further down the road and will most likely be less precise in our detailed understanding. The detailed examination of the earlier phase(s) also allows for a sharper focus upon force closures—especially important if critical capabilities are not in place in the AO/JOA and their arrival supports a specific event. See the example matrix; figure H-1, on page H-3.

[34] See Appendix J for a summary of operational time definitions.

	PHASE I Shaping OPS	PHASE II Forced Entry OPS		PHASE III Force Build-up	PHASE IV Decisive OPS	PHASE V Stabilization/ Redeployment
TIME **C DAY/D DAY** **/H HOUR**	Pre-Forced Entry Ops D Day H -10 to H +3	Forced Entry Ops D Day H+3 to H+15	Forced Entry Ops D Day H+15 to H+24	Follow-On Deployment Ops D+1 to D +2	Decisive Ops D +2 to D +8	Hand-Over Redeployment Ops D +8 to D +45
JFLCC	-Abn Forces at ISB -Establish coord w/JSOCC forces in JOA	-ABN Forces to Arfld/Obj DOG	-Occupy Afld -Block Positn at Obj DOG	-Continue Deploy Air Landed Forces	-Accpet MEU -Destroy RGB/ Terrorists	-Handover Ops -Redeploy Forces -Transition
JFMCC	-Destroy Redland Maritime Forces -B/P to conduct Amphib Ops -Spt Deception Ops	-Maintain Maritime Superiority	-Psn MEU for B/P Msn	-Deploy MEU CHOP to JFLCC	-Redeploy Maritime Assets	
JFACC	-Gain Air Superiority -Destroy/Neutral Enemy RGB/C2		-Expand Air Superiority in Redland		-Support MEU OPS	-Redeploy Air Assets
JSOCC	-Insert forces for Surv/Targeting 3 RGB.	Spt Forced Entry	Spt Forced Entry	Spt JFLCC Ops	-Support MEU OPS	-Drawdown and Redeploy SOF
			-Expand Surv Terrorist Trng Camps			
JPOTF	-Spt Decep Ops -Gain Spt of Civ Pop			Surrender of Red Forces		Prepare Civ pop for drawdown
INTEL	-Are conditions set for forced entry? -Success of Deep Plan	Status of 2 & 3 RGB Reaction of Redland civ pop	Status of 1 RGB and poss MEU landing sites			-Reduce Intel Ops/Assets
C2	JTF HQ Afloat	B/P to CHOP MEU		-C2 CHOP MEUtoJFLCC	-Plan in place for redeployment	-Prepar Xfer C2 Host Nation/Diplomats
LOGISTICS	-JSB in operation SLCs Esatab -Prepos In Place	-B/P to flow in lairlanded forces	-Assume control of RED Airfld ops			-Redeploy Assets -Disestablish bases
DECISION POINT ★	-When To Initiate Forced Entry	-When To Expand Air Control/ Surv Ops	-When Initiate Phase III F-on Deploy Ops	-When to Conduct Decisive Ops / deploy Meu		-When to Turnover to Host Nation/Diplomats
BRANCHES	-Deep Plan Fails -Air or maritime Superiority not achieved	-2 RGB moves to counter ABN ops	-Occupation of Afld Fails		-RGB/Terror Not Destroyed	-Hand Over to Host Cry/Diplomats Delayed

Figure G-1. Example Joint Synchronization Matrix

	TIME C DAY/D DAY	PRE-PHASE I OPERATIONS	PHASE I _____	PHASE II _____	PHASE III _____	PHASE IV _____	PHASE V _____	DECISION POINT ★

Figure H-2. Sample Joint Synchronization Matrix

APPENDIX I: Plan Rehearsals

(Extracted from the Joint Warfighting Center JTF Rehearsal Handbook)

In the complex world of Joint Operations, rehearsals are vital to the successful execution of an Operation Order (OPORD). Joint operations rehearsals allow the joint force staff to practice the OPORD before its actual execution. Through Joint operations rehearsals, the Joint Force Commander (JFC) and staff gain an understanding of the concept of operations in its entirety. These rehearsals afford a comprehensive view of the operation, orient the individual joint force components to one another, and more importantly, give each component a thorough understanding of the JFC's intent, priorities, and guidance.

Joint operations rehearsals are conducted at the operational level of war. This yields a much broader perspective than the tactical level. The operational level of war focuses on the deployment and employment of joint force major component forces, commitment and withdrawal from battle, and the arrangement of battles and major operations in the Joint Operations Area (JOA).

Service	Types	Techniques
Army • (Field Manual (FM) 101-5 and • Center for Army Lessons Learned (CALL) Newsletter 98-5	• Confirmation Brief • Backbrief • Combined Arms Rehearsal • Support Rehearsal (Fires, logistical support, etc.) • Battle Drill or Standing Operating Procedures (SOP) Rehearsal	• Full Dress Rehearsal • Reduced Force Rehearsal • Area (Terrain) Model Rehearsal • Sketch Map Rehearsal • Map Rehearsal • Radio Rehearsal
Marine Corps (Marine Corps Warfare Publication (MCWP)5-1)	• Staff Rehearsal • Integrated Rehearsal • Modified, Integrated Rehearsal	• None identified
Air Force (Air Force Doctrine Document (AFDD) 2-7)	• Full Dress Rehearsal • Partial Force Rehearsal	• None identified
Navy (Naval Warfare Publication (NWP) Series)	• Amphibious Rehearsal • Assault Rehearsal • Sweep Rehearsal • Unit Rehearsal (e.g., SEALs)	• Complete Rehearsal • Limited Rehearsal

Table I-1. Service Types and Techniques of Rehearsals

Before a Joint Operations Rehearsal can be conducted the joint force's and the component's OPORDs must be synchronized as part of the planning process. Synchronization allows the joint force staff and components to identify and correct major interoperability problems in the concept of operations.

There is limited information concerning Joint operations rehearsals in Joint publications, and the normal alternative of reverting to Service publications for guidance can cause considerable confusion. Service definitions for "types" and "techniques" of rehearsals, in Table I-1, reveal differing perspectives on this critical aspect of planning and executing operations.

1. General.

Rehearsing is the process of practicing a plan in the time available before actual execution. Rehearsing key combat and logistic actions allows participants to become familiar with the operation and to visualize the plan. This process assists them in orienting themselves to their surroundings and to other units during execution. Rehearsals also provide a forum for subordinate leaders to analyze the plan. However, caution must be exercised in adjusting the plan in order to prevent errors in synchronization. While the joint force may not be able to rehearse an entire operation, the JFC should identify key elements for rehearsal. Rehearsals should always be performed before the execution of an operation. The JFC should not equivocate on rehearsals as they allow the participants to gain a better understanding of his intentions and vision for the operation. The JFC should attend subordinate rehearsals so that he understands components' plans and to ensure his intent is understood.

The operational level rehearsal helps the Commander weave the series of component tactical actions over days and weeks into a campaign or set of major operations that ultimately address the Combatant Commander's requirements for an end state. The operational-level planning horizon has expanded and consequently the vision of the future is more important. At the operational level, the questions that involve future vision are:

- What military (or related political and social) conditions must be produced in the Joint Operations Area (JOA) to achieve the strategic goal? (Ends)
- What sequence of actions is most likely to produce that condition? (Ways)
- How should the resources of the joint force be applied to accomplish that sequence of actions? (Means)
- What is the likely cost or risk to the JTF in performing that sequence of actions?
- Do I have the right forces in the right place at the right time?
- Where am I in light of my operational end state?
- What should I be doing now to influence events three to five days from now?

2. Types and Techniques of Joint Operations Rehearsals.

a. Types.

- **Staff Only Rehearsals.** This type of rehearsal is internal to the participating JTF or component headquarters staffs or conducted between the JTF and component staffs.

- **Commanders and Staff Rehearsals.** This type of rehearsal is for the JFC, component commanders, and their staffs. The actual participants may vary from only commanders and key staff personnel to full joint force and components' headquarters participation.

- **Partial Force Rehearsals.** This type of rehearsal is a compromise between a Staff Only Rehearsal, a Commanders and Staff Rehearsal, and the resource-intensive Full Force Rehearsal. The ultimate desire is to have representation from as many joint force components as possible.

- **Full Force Rehearsals.** These are the most effective, but also the most resource-intensive types of rehearsals. This technique may involve all participants (Commanders, staffs and units) rehearsing parts or all of the operation.

b. Techniques.

Note: Whenever possible, all joint operations rehearsal techniques should include the exercising of communications personnel, facilities, and circuits that will be used during the actual operation.

- **Map/Chart Technique.** By assembling commanders and a minimum of staff personnel around some type of tactical display (e.g., map, nautical charts, aerial imagery), the rehearsal director leads participants through the operation. Participants are responsible for moving/explaining their actions and counteractions to the enemy's (or others ,e.g., third country's) reactions.

- **Area (Terrain) Board Technique.** Same as the previous technique except that some form of area model is used in place of a map/chart.

- **Simulation Supported Technique.** When properly used, simulation provides an opportunity to increase the fidelity of any rehearsal process. Simulations such as the Joint Theater Level Simulation (JTLS) or the Joint Training Confederation (JTC) may be used to actually portray the "execution" of a plan. However, the databases required for this technique have limitations and require time to develop. Therefore, decisions to use them when rehearsing a time-sensitive operation resulting from crisis action planning should be carefully considered.

- **Similar Area Technique.** The Commanders and Staff, Partial Force, and Full Force rehearsal types may use areas (land areas/sea and littoral areas/buildings and structures) that are similar to the actual Joint Operations Area (JOA).

- **Actual Area Technique.** In certain types of operations (such as retrogrades), the JTF may be able to use the actual area in which the operation will take place.

The commander may also direct that numerous, multi-echelon rehearsals be conducted. The factors the commander should consider in making a decision on the numbers, types, and techniques of rehearsals are:

- Available time
- Who will participate
- Operations security considerations
- Area/space availability
- Objectives of the rehearsal

Combining the types and techniques of rehearsals produces the combination of possibilities reflected in Table I-2.

Note: It is feasible for the joint force to use various technologies (e.g., video teleconferencing (VTC) and available collaborative systems) to conduct the Map/Chart, Area (Terrain) Board, and Simulation Supported techniques of rehearsals.

Types	Techniques
Staff Only	• Map/Chart Technique • Area (Terrain) Board Technique • Simulation Supported Technique
Commanders and Staff	• Map/Chart Technique • Area (Terrain) Board Technique • Simulation Supported Technique • Similar Area Technique • Actual Area Technique
Partial Force	• Map/Chart Technique • Area (Terrain) Board Technique • Simulation Supported Technique • Similar Area Technique • Actual Area Technique
Full Force	• Map/Chart Technique • Area (Terrain) Board Technique • Simulation Supported Technique • Similar Area Technique • Actual Area Technique

Table I-2. Rehearsal Types and Techniques Combinations

3. Preparing for Joint Operations Rehearsals.

General. Rehearsals at all levels of command are key to ensuring an understanding of the concept of operations, specific responsibilities, timing of actions, and backup procedures to coordinate joint force operations. Rehearsing the entire operation is desirable. However, in time-constrained situations, rehearsals may be abbreviated to focus on the most critical portions of the operation.

Select Type. The Commander should specify the type of rehearsal to be conducted in his "commander's guidance." This allows the staff to begin planning for rehearsals, which may be a considerable effort in itself, especially if a Full Force rehearsal is desired. Figure I-1 portrays how the four types of rehearsals vary according to amount of time/resources required and the amount of understanding desired concerning the operation.

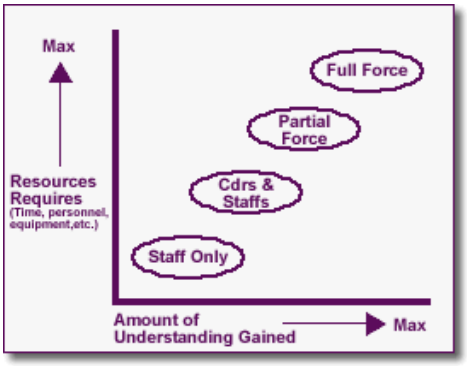


Figure I-1. Selecting Type of Rehearsal

Specify basic rehearsal requirements. The Commander (or designated representative, e.g., J3, J5) should:

- Identify and prioritize the events to be rehearsed (e.g., D-Day actions).
- Allocate time for the events being rehearsed.
- Designate attendees.

Determine roles/responsibilities of participants. Examples are:

- **Facilitator.** This is a key billet and one that is fundamental to the success of the rehearsal. The individual assigned as the facilitator should be intimately familiar with the Operations Order (OPORD). Typically this individual has participated in the joint force plan development process as well as the crosswalk between the component and joint force OPORDs. The facilitator should also have a solid understanding of the JFC's intent. The facilitator keeps the rehearsal on track by adhering to the agenda and ensuring the discussion remains focused on the subject at hand.

- **Red Cell.** The Red Cell portrays a credible threat against which the joint force can rehearse. The credible threat can range from a known enemy force, belligerent factions

in military operations other than war, or other contingency circumstances such as the weather (rain/snow), natural disasters (hurricanes/earthquakes) and other distracters that could impede mission success. It is important that the Red Cell use individuals with the requisite expertise in the threat they are representing to challenge the JTF actions in a realistic manner. The Red Cell should be an independent group of participants and not "dual hated" to represent both friendly and "enemy" forces and capabilities.

- **Briefers/Role Players.** Role players need to be identified to represent and brief the actions and counteractions of the joint force HQ, Service and/or functional components, and supporting commands and agencies. The role players must understand the details of their respective commanders' concepts of operation and intents on accomplishing their assigned missions, as well as the capabilities and limitations their respective organizations can bring to bear to support the JFC.

- **Recorder.** A recorder must be identified to capture those items that require further action or coordination. By freeing the training audience of note taking tasks, recorders allow participants to focus their attention on the rehearsal. Effective techniques for the recorder include posting large butcher block paper on the wall of the rehearsal area to capture action items or keeping an overhead projection slide up on a screen. Either of these two techniques allows the rehearsal participants to see what is recorded and helps ensure all required actions are identified.

- **Prepare script.** A script is prepared and used as a tool to control the rehearsal, regardless of the type of rehearsal selected. The script is used to keep the rehearsal on track and as a method for ensuring that key personnel are not overlooked while conducting a rehearsal. A script should consist of the following:

- **Agenda.** The overall plan for conducting of the rehearsal.

    - Review of the type and technique to be used
    - Ground rules
    - Administrative issues
    - Training objectives and standards to be used
    - Timeline
    - Other issues - Commander's discretion

- **Sequence of events.** Exactly what will be rehearsed and in what order.

- **Sequence of responses.** Role players should respond in some type of logical order or the rehearsal can become disorganized and confusing. A commonly used method to alleviate confusion is the action-reaction-counteraction sequence with role players responding to one another using some prearranged order (e.g., Air Force (AFFOR), Army Forces (ARFOR), Marine Corps Forces (MARFOR), Navy Forces (NAVFOR), Joint Force Air Component Commander (JFACC), Joint Special Operations Task Force (JSOTF)).

- **Issue rehearsal instructions.** Some type of order or letter of instruction (LOI) should be developed by the staff to provide specifics concerning the above topics.

- **Assemble resources and support personnel.** Most rehearsals require various types of training aids, sites, security precautions, construction, etc., to be coordinated and assembled. In addition, support personnel will be necessary, and their roles and responsibilities must be determined and explained.

- **Prepare site.** Regardless of the type and technique of rehearsal, some type of site preparation is required. Some items to verify are:

    - Site facilities (parking, latrines/heads, buildings, seating, etc.)
    - Site security (operations security and local physical security)
    - Appropriate training aids (maps, area (terrain) boards, audio-visual devices, etc.)
    - Feeding plans/facilities

4. Conducting Joint Operations Rehearsals.

a. Staff Only Rehearsals.

Staff only rehearsals are designed to familiarize the joint force and/or component staffs with the plan or order (e.g., transitioning the plan from one staff section to another) or to practice internal headquarters' procedures before the operation's execution. Explanations of these two variations are provided below.

- **Transitioning the plan.** The value of a plan lies in its ability to be translated into an easily understood and executed order. This transition from plan to order can create difficulties within a joint force or component staff if the staff fails to reach an agreed upon procedure in advance. This procedure should cover which section is responsible for which type of plan and order and, most importantly, how the plan or order moves from one set of planners to others. When transitioning plans or orders from one section to another, all must understand the method of transmission and the form the plan or order will take. One approach is to have a designated planner with a particular operation that moves with the plan from J5 (Future Plans) to J35 (Future Operations) and then into the J3 (Current Ops) for execution. The plan gains fidelity as it progresses. This provides the guaranteed presence of a "subject matter expert" if questions arise during plan refinement or execution. Another technique is to provide a formal plan brief conducted by the losing planners (J5 Future Plans) to the receiving planners/operators (J3 Current Ops). This provides for a clear transition and ensures unclear concepts or concerns are reviewed. Table I-3 provides a sample sequence of events to accomplish this variation.

- Joint Planning Group (JPG) conducts plans hand-off brief to J3 Joint Operations Center (JOC) personnel.
- JPG provides to J3 JOC personnel:
  - Coordinated draft Fragmentary Order (FRAGO)
  - Course of Action (COA) sketch of applicable branches/sequels
  - Draft execution/synchronization checklist/matrix
- JPG provides clarification as required.
- J3 JOC accepts planning products for modification and issuance as an order.

Table I-3. Sample "Transitioning the Plan" Sequence of Events

- **Practicing internal procedures.** This form of Staff Only rehearsal practices the internal processes and procedures that a staff is expected to perform during an actual operation. For example, the Joint Targeting Coordination Board (JTCB) should rehearse its agenda and briefing sequence. Using this procedure, the Joint Operations Center (JOC) should rehearse its shift changeover process, or the Rules of Engagement (ROE) Cell should rehearse its meeting process.

Staff Only rehearsals can be conducted by using any of the following techniques:

- Map/Chart Technique
- Area (Terrain) Board Technique
- Simulations Supported Technique

JTF Lessons Learned

- The Chief of Staff should be proactive in ensuring these rehearsals are conducted and adequately attended by the various staff representatives and all Liaison Officers.
- Staff Only rehearsals provide the additional benefit of bringing cohesiveness to a newly formed JTF Headquarters or component staff.

b. Commanders and Staff Rehearsals.

Commanders and Staff rehearsals provide a means for the principal leaders to 1) understand the intent of a JFC with a minimum of disruption to tactical level units and 2) familiarize themselves with the operation before the conduct of either partial force or full force rehearsals. Commanders and Staff rehearsals can be conducted by using any of the following techniques:

- Map/Chart Technique
- Area (Terrain) Board Technique
- Simulations Supported Technique
- Similar Area Technique
- Actual Area Technique

The steps in conducting this type of rehearsal include:

- **Conduct introduction**.

  Welcome and introduce the participants.
  Explain purpose, overall process (technique), and expected results of the rehearsal.
  Review in detail the overall schedule of events.
  Explain the "standards" expected to be met throughout this process.
  Orientation on all tools (maps, terrain models, synchronization matrices, handouts, etc.).

- **Review the friendly, enemy, and third party situations.**

  Review Combatant Commander's/own mission, intent and concept of operations.
  Review overall (not specific) enemy situation.

- **Portray action-reaction-counteraction events.** Starting with the phase, critical event, or timeline the JFC has designated, discuss the components' **actions**. Then the "Red Cell" presents the anticipated **reactions**. If the plan is well developed, the joint force/components' **counteraction** should then be presented. When it becomes obvious that changes need to be made to the original plan, record these for Conducting Joint operations rehearsals development of either changes to the plan or fragmentary orders (FRAGOs). Significant changes can take the form of branch plans.

- **Conduct After-Action Review (AAR).** The commander may wish to conduct an AAR to review lessons learned for future inclusion into the command's decision-making process. Additionally, the commander may take the opportunity to reiterate Commander's Intent and make sure changes to the plan or order are understood.

Commander and Staff Rehearsal
Sample Agenda

- **Facilitator/staff brief:**

  Current friendly situation
  Enemy situation and Courses of Action (COAs)
  Combatant Commander's mission and intent
  Command's mission and Commander's intent
  Command's Task Organization
  Overall Command's Concept of Operations
  Key tasks (e.g., critical tasks)
  Initial command relationships

- **Facilitator sets the phase, action, or critical event that is to be rehearsed** (e.g., deployment, D-Day events, non-combatant operations).

- **Components discuss their actions.**

- **J2 (or "Red Cell") portrays the expected enemy reactions** (most likely enemy COA).

- **Components in turn discuss their counteractions to the enemy's reactions**.

Note: If the counteraction is a branch or sequel plan, the facilitator must determine if time is available to discuss it or if it should be deferred to a later date. In many cases, the counteraction will only be a "concept" for a branch plan that will be developed and rehearsed later.

- **Facilitator reviews decisions and necessary follow-on actions** (including any changes to the plan or order that are necessitated by the rehearsal).

- **Commanders provide summary remarks.**

Table I-4. Commander and Staff Rehearsal Sample Agenda

JTF Lessons Learned

- Rehearsals where components merely brief their concept of operations from beginning to end are ineffective since little interaction occurs between components.
- Major changes WILL cause the desynchronization of plans -- the exact opposite of the rehearsal's intent. Keep the changes to an absolute minimum (refinements to the plan).
- The commander should focus on the "seams" of interaction among JTF components. Asking questions about inter-component coordination and cooperation will reveal potential weaknesses.

c. Partial Force Rehearsals.

Partial Force (sometimes called “reduced force”) rehearsals normally require less resources (e.g., time, personnel, materiel) than the Full Force rehearsal but more than the Commanders and Staff rehearsal. Like the Full Force rehearsal, this type is best conducted under the same conditions, weather, time of day and terrain, as the force will encounter during the actual operation. Battle space requirements are the same as the Full Force rehearsal, only the number of participants change. A form of Partial Force rehearsal is commonly called a Training Exercise without Troops (TEWT).

In Partial Force rehearsals, the Commander must first decide the level of leader involvement in the rehearsal. The selected leaders then rehearse the plan while traversing the actual or like terrain. This type is an efficient means of rehearsing particular phases in the operation before a Full Force rehearsal or, if as a substitute for a Full Force rehearsal due to severe time constraints. This rehearsal type is also an excellent way for component commanders to rehearse and understand portions of their individual plans before participating in a Full Force rehearsal. As in the Full Force rehearsal, careful consideration must be given to the component commanders and the tactical units' timetables before scheduling.

Finding a suitable operating area for a Partial Force rehearsal can be just as difficult as finding an operating area for a Full Force rehearsal. As with the Full Force rehearsal, the time intensive task of developing and issuing a separate operations directive, which mirrors the actual plan, to include operational graphics, is normally accomplished.

d. Full Force Rehearsals

The Full Force rehearsal produces the most detailed understanding of both the mission and the Commander’s Intent. It is also the most difficult type to perform because it notionally involves every individual and system participating in the operation.

Full Force rehearsals are normally the most time consuming of all the rehearsal types. It is particularly important to be sensitive to encroaching on the Functional or Service component’s preparation timelines by scheduling a Full Force rehearsal in a very compressed planning and execution window. Time permitting, Functional and Service components might consider conducting a Partial Force rehearsal before the Full Force rehearsal. While this requires even more time, it is considered time well spent in ensuring the Full Force rehearsal is conducted efficiently. If time cannot be found to conduct a separate component rehearsal, a component might consider conducting a Full Force rehearsal as part of the JTF’s Partial Force rehearsal.

Operations Security (OPSEC) is always a consideration in conducting Full Force rehearsals. The movement of a large body of the JTF and components will certainly attract attention from the enemy. The JTF must develop plans to ensure the Full Force rehearsal is protected from the eyes of the enemy.

Finding a suitable operating area for a Full Force rehearsal can be difficult. If possible, the JTF should conduct this rehearsal under the same conditions, weather, time of day, terrain, etc.,

as the force will encounter during the actual operation. This may include the use of live ammunition. The rehearsal area must be identified, secured, cleared and maintained throughout the rehearsal process. Additionally, the time intensive task of developing a separate operations directive, which mirrors the actual plan, to include operational graphics, is normally accomplished for this type of rehearsal.

5. Choosing the Correct Type or Technique.

There are no "right answers" for the type and technique of rehearsals to conduct. The Commander must consider several factors before making a choice. These include:

- **Available time.** Time is the essential resource and must be carefully considered when determining rehearsal types, techniques and schedules. The time required for a rehearsal varies with the complexity of the tasks to be rehearsed, the type, and technique of rehearsal used. . It is usually advantageous to give the priority of rehearsal time to the lowest level units. Focusing on the critical events of the operation can also save time.

- **Participation.** The Commander must provide guidance concerning who should be involved in the rehearsal. If the Commander wishes that all joint force members participate in the rehearsal, then more time and other resources will be expended.

- **Operations security (OPSEC) considerations.** The main question the Commander must consider is "How easily can the enemy gather intelligence from the rehearsal?" The more participants, the more of an OPSEC risk the rehearsal becomes.

- **Area/space availability.** In some cases, especially for Full Force rehearsals, obtaining the area/terrain that is similar to the objective area may be difficult.

- **Objectives of the rehearsal.** What is to be accomplished? The Commander must determine the extent of the objectives (or tasks) to be accomplished in the rehearsal. Some tasks require that a specific type or technique be employed to accomplish certain tasks.

APPENDIX J: Operational Time Definitions

Times. (DOD) (C, D, and M-days end at 2400 hours Universal Time (zulu time) and are assumed to be 24 hours long for planning.) The Chairman of the Joint Chiefs of Staff normally coordinates the proposed date with the commanders of the appropriate unified and specified commands, as well as any recommended changes to C-day. L-hour will be established per plan, crisis, or theater of operations and will apply to both air and surface movements. Normally, L-hour will be established to allow C-day to be a 24-hour day.

a. C-day. The unnamed day on which a deployment operation commences or is to commence. The deployment may be movement of troops, cargo, weapon systems, or a combination of these elements using any or all types of transport. The letter "C" will be the only one used to denote the above. The highest command or headquarters responsible for coordinating the planning will specify the exact meaning of C-day within the aforementioned definition. The command or headquarters directly responsible for the execution of the operation, if other than the one coordinating the planning, will do so in light of the meaning specified by the highest command or headquarters coordinating the planning.

b. D-day. The unnamed day on which a particular operation commences or is to commence.

c. F-day. For deliberate planning, day on which FDO force deployment begins.

d. F-hour. The effective time of announcement by the Secretary of Defense to the Military Departments of a decision to mobilize Reserve units.

e. H-hour. The specific hour on D-day at which a particular operation commences.

f. I-day. The day on which the Intelligence Community determines that within a potential crisis situation, a development occurs that may signal a heightened threat to U.S. interests. Although the scope and direction of the threat is ambiguous, the Intelligence Community responds by focusing collection and other resources to monitor and report on the situation as it evolves.

g. L-hour. The specific hour on C-day at which a deployment operation commences or is to commence.

h. M-day. The term used to designate the unnamed day on which full mobilization commences or is due to commence.

i. N-day. The unnamed day an active duty unit is notified for deployment or redeployment.

j. R-day. Redeployment day. The day on which redeployment of major combat, combat support, and combat service support forces begins in an operation.

k. S-day. The day the President authorizes Selective Reserve callup (not more than 200,000).

l. T-day. The effective day coincident with Presidential declaration of National Emergency and authorization of partial mobilization (not more than 1,000,000 personnel exclusive of the 200,000 callup).

m. W-day. Declared by the National Command Authorities, W-day is associated with an adversary decision to prepare for war (unambiguous strategic warning).

	APPENDIX K: Abbreviations and Acronyms
ABCCC	Airborne Battlefield Command and Control Center
ABN	Airborne
AFFOR	Air Force Forces
AI	Area of Interest; Air Interdiction
ALOC	Air Lines of Communication
AO	Area of Operations
AOA	Amphibious Objective Area
AOC	Air Operations Center
APOD	Aerial Port of Debarkation
APOE	Aerial Port of Embarkation
ARFOR	Army Forces
ATO	Air Tasking Order
BN	Battalion
BDE	Brigade
C2	Command and Control
C2W	Command and Control Warfare
C3IC	Coalition Coordination, Communications, & Integration Center
C4I	Command, Control, Communications, Computers & Intelligence
C4ISR	Command, Control, Communications, Computers & Intelligence, Surveillance and Reconnaissance
CA	Civil Affairs
CAP	Crisis Action Planning
CCIR	Commander's Critical Information Requirements
CENTAF	US Air Force component, US Central Command
CES	Commander's Estimate of the Situation
CJCS	Chairman of the Joint Chiefs of Staff
CJCSM	Chairman of the Joint Chiefs of Staff Manual
CJTF	Commander, Joint Task Force ; Combined Joint Task Force (NATO)
CMOC	Civil-Military Operations Center; Cheyenne Mountain Operations Center
COA	Course of Action
COG	Center of Gravity
COMSEC	Communications Security
CONPLAN	Concept Plan
COS	Chief of Staff
CR	Collection Requirement
CRAF	Civil Reserve Air Fleet
CRD	CINC's Required Date
CS	Combat Support
CSAR	Combat Search and Rescue
CSS	Combat Service Support

CV	Critical Vulnerability; Aircraft Carrier
CVBG	Aircraft Carrier Battle Group
CVN	Aircraft Carrier, Nuclear
DAL	Defended Assets List
DES	Desired End State
DCJTF	Deputy Commander, Joint Task Force
DIRLAUTH	Direct Liaison Authorized
DISA	Defense Intelligence Systems Agency
DIV	Division
DJTFAC	Deployable Joint Task Force Augmentation Cell
DoD	Department of Defense
DP	Decision Point
DRAW-D	Defend, Reinforce, Attack, Withdraw, Delay
EAD	Earliest Arrival Date
ECOA	Enemy Course of Action
FDO	Flexible Deterrent Option
FID	Foreign Internal Defense
FSCL	Fire Support Coordination Line
FFIR	Friendly Force Information Requirements
FRAGO	Fragmentary Order
HQ	Headquarters
HQ COMDT	Headquarters Commandant
GCCS	Global Command and Control System
HN	Host Nation
HNS	Host Nation Support
HPT	High Payoff Target
HQ	Headquarters
HVT	High Value Target
IAW	In Accordance With
IM	Information Management
IMO	Information Management Officer
IMP	Information Management Plan
IO	Information Operations
ISB	Intermediate Staging Base
ISR	Intelligence, Surveillance and Reconnaissance
JCLL	Joint Center for Lessons Learned
JCMA	Joint Communications Security Monitoring Activity
JCSE	Joint Communications Support Element
JFE	Joint Fires Element
JIB	Joint Information Bureau
JDLC	Joint Distributed Learning Center
JFACC	Joint Force Air Component Commander
JFC	Joint Force Commander
JFLCC	Joint Force Land Component Commander

JFMCC	Joint Force Maritime Component Commander
JFSOCC	Joint Force Special Operations Component Commander
JPOTF	Joint Psychological Operations Task Force
JIC	Joint Intelligence Center
JICO	Joint Interface Control Officer
JIOC	Joint Information Operations Center
JIPB	Joint Intelligence Preparation of the Battlespace
JIPTL	Joint Integrated Prioritized Target List
JMC	Joint Movement Center
JOA	Joint Operations Area
JOPES	Joint Operational Planning and Execution System
JOC	Joint Operations Center
JP	Joint Publication
JPG	Joint Planning Group
JPO-STC	Joint Program Office for Special Technology Countermeasures
JPRC	Joint Personnel Reception Center
JRSOI	Joint Reception, Staging, Onward Movement and Integration
JSC	Joint Spectrum Center
JSOTF	Joint Special Operations Task Force
JTCB	Joint Targeting Coordination Board
JTF	Joint Task Force
JTF HQ	Joint Task Force Headquarters
JULLS	Joint Universal Lessons Learned System
JTTP	Joint Tactics, Techniques and Procedures
JVB	Joint Visitors Bureau
JWAC	Joint Weapons Analysis Center
LAD	Latest Arrival Date
LASH	Lighter Aboard Ships
LKA	Amphibious cargo ship
LOC	Line of Communications
LNO	Liaison Officer
LPD	Amphibious transport dock ship
LPH	Amphibious assault helicopter ship
LSD	Dock landing ship
LST	Tank landing ship
MARCENT	Marine Forces Central Command
MARFOR	Marine Forces
MCM	Mine Countermeasures
MCOO	Modified Combined Obstacle Overlay
MEF	Marine Expeditionary Force
METT-TC	Mission, Enemy, Terrain (Battlespace), Troops available, Time available, and Civil Considerations
MEU	Marine Expeditionary Unit
MEH	Materials Handling Equipment

MHC	Minehunter, Coastal
MIO	Maritime Interception Operations
MOG	Maximum on Ground
MOPP	Mission-Oriented Protective Posture
MOOSEMUSS	Mass, Objective, Offensive, Surprise, Economy of Force, Maneuver, Unity of Command, Security, Simplicity.
MOOTW	Military Operations Other Than War
MOUT	Military Operations in Urban Terrain
MTW	Major Theater War
NAI	Named Area of Interest
NAVFOR	Navy Forces
NBC	Nuclear, Biological, and Chemical
NCA	National Command Authorities
NEO	Noncombatant Evacuation Operation
NGO	Non-Governmental Organization
NIPRNET	Unclassified but Sensitive Internet Protocol Router Network
NIST	National Intelligence Support Team
NSA	National Security Agency
NSW	Naval Special Warfare
OBJ	Objective
OPCON	Operational Control
OPG	Operational Planning Group
OPLAN	Operation Plan
OPORD	Operation Order
PA	Public Affairs
PAO	Public Affairs Officer
PAX	Personnel
PIR	Priority Intelligence Requirement
POD	Port of Debarkation
POE	Port of Embarkation
POLAD	Political Advisor
PR	Production Request
PREPO	Pre-Positioned force, equipment, or supplies
Prime BEEF	Prime Base Engineer Emergency Forces
PSYOP	Psychological Operations
PVO	Private Voluntary Organization
RED HORSE	Rapid Engineers Deployable Heavy Operations Repair Squadron, Engineers
RFI	Request for Information
ROE	Rules Of Engagement
RSOI	Reception, Staging, Onward Movement, and Integration
SASO	Stability and Support Operations
SIPRNET	SECRET Internet Protocol Router Network
SLOC	Sea Line of Communications

SLURPO	Security, Legitimacy, Unity of Effort, Restraint, Perseverance, Objective
SMEAC	Situation, Mission, Execution, Admin and Logistics, Command and Control
SOCCE	Special Operations Command and Control Element
SOF	Special Operations Forces
SOP	Standing (or standard) Operating Procedures
SPOD	Sea Port of Debarkation
SPOE	Sea Port of Embarkation
SJA	Staff Judge Advocate
SJFHQ	Standing Joint Force Headquarters
TACON	Tactical Control
TADIL	Tactical Digital Information Link
TAI	Target Areas of Interest
TF	Task Force
TPFDD	Time-Phased Force and Deployment Data
UJTL	Universal Joint Task List
USA	United States Army
USAF	United States Air Force
USN	United States Navy
USMC	United States Marine Corps
USCG	United States Coast Guard
USTRANSCOM	United States Transportation Command
VISA	Voluntary Intermodal Sealift Agreement
VTC	Video Teleconferencing
WO	Warning Order
WMD	Weapons of Mass Destruction